

***Report of  
Program Audit Results for  
FY 2001/2002***

***Fire  
Services***

June 2004



## **Introduction**

The performance review of the Fire Services program was carried out as part of the effort to audit all City programs over the course of several years. This review was conducted following the review of three other Public Safety programs: Animal Control, Emergency Preparedness, and Police Services.

The FY 2001/2002 budget provided \$14.7 million and 204,000 work hours (roughly 110 full-time staff) for achievement of the Fire Services program goals. This represented 34% of the total Public Safety budget of \$43.3 million and 15% of the City's general fund budgeted costs. Fire Services was the City's third most expensive program, behind Solid Waste and Police Services. More resources were allocated to this program than to most city *departments*, except Public Works and Parks and Recreation.

The audit team wishes to thank the Fire Services staff for their assistance, especially Capt. John Debattista, Capt. Byron Pipkin, Lt. Steve Drewniany and Bill Bielski.

During the course of the audit, the Department of Public Safety was being restructured. The restructure may have addressed some of the issues raised by this report. The degree to which the restructure addresses this audit will be discussed in a subsequent follow up audit.

### *Scope and Methodology*

The purpose of the performance audit of the Fire Services Program was to review the FY 2001/2002 results of the program, SDP, and activity measures. Audit staff gathered and reviewed all written Standard Operating Procedures (SOPs) for the program's outcome measures and activities. Staff evaluated the methodology employed for reporting results for FY 2001/2002, as well as the documentation used for those calculations and the mathematical accuracy of the reported figures. Although some findings and recommendations may touch on the program's organization, operations, efficiency or efficacy, these elements were not the focus of the review.

Since there were no results for SubSDP measures reported in FY 2001/2002, the audit report does not address those measures. This report also does not address Fire Prevention Permitting, which was added to this program in FY 2002/2003. This report also does not address allocated activities, since those dollars and work hours are allocated to the direct activities, and does not address activities that were defunct as of FY 2001/2002.

## **Background**

### *Outcome Measurement in Sunnyvale*

Measuring program performance and program outcomes has been a key feature of Sunnyvale's management system for more than two decades. Funding for City programs is not budgeted by line item, such as "salaries," but rather by the efforts or tasks undertaken by staff. These tasks are called "activities." Each activity has a budgeted number of dollars intended to cover the cost of carrying out the task. Each also has a budgeted number of "products" that management is expected to produce with those dollars.

Related activities are grouped together. The groupings are called Service Delivery Plans, or SDPs. Taken together, these activities are expected to yield more than just the sum of the "products" of each activity. Collectively, they are expected to produce broad end results, or "outcomes," that can be measured. For instance, an activity that pays for workers to clean parks will yield a certain number of parks cleaned (the "products"), but also – in conjunction with other activities – will produce a measurable level of "public satisfaction" with parks (the "outcome.")

Service Delivery Plans with similar purpose are grouped together to form programs. For instance, the Fire Services program in FY 2001/2002 contained three SDPs: one to provide emergency medical services, one to manage hazardous materials, and one to respond to fire and catastrophic emergencies. Programs are then grouped to form departments. The Fire Services program was one of five programs in FY 2001/2002 within the Department of Public Safety.

### *Fire Services Program*

The mission of the Fire Services program is to save lives, reduce injury and suffering, and control fires and fire-related damage. The program operates 6 fire stations that provide coverage across the City's 24 square miles.

There are several factors that have created unique challenges in the measurement of this program's outcomes and products. These factors are:

- Fire Services was among the first programs to try to measure its outcomes;
- The written procedures for documenting and calculating outcomes are often poor;
- Turnover in the Department of Public Safety.

In 1997, the Public Safety programs adopted "outcome" budgets. Because these were some of the first programs to try to measure outcomes, the outcome measures that were implemented in 1997 were necessarily experimental. In a sense, the program and its predecessors became something of a "guinea pig" in the City's bold effort to capture not only concrete "outputs" but also the end results of program efforts.

Measuring the outcomes associated with Fire Services is challenging. Attempting to measure a "life saved" or "suffering prevented" is inherently difficult. In addition, much of the data needed for the calculations is itself complex and full of nuance, and it is often stored or tracked in ways that are time consuming or require substantial expertise to extract, interpret or analyze.

Since 1997 when the existing procedures for calculating the reportable results for the program were approved, there have been numerous changes in the personnel responsible for understanding and reporting on the program's outcomes. There have been five different permanent or interim department directors, and the Fire Services program operations have been managed by at least six different people. In 1999, the Public Safety department's three Commanders, who had long assumed responsibility for budget-related matters, including reporting of results, left the City. Since that time, budget-related matters have been delegated to various individuals.



## **Summary of Main Findings**

1. The audit examined 43 unique, active, measures and activities. Some type of exception was identified in 34 (79%) of the measures and activities reviewed.
2. The most common problem related to documentation. Documentation was either inadequate or in conflict with the reported result 49% of the time. For instance, logs and rosters were not maintained, or totals listed on tracking records were not the same as reported totals.
3. The second most common problem identified was poorly designed, outdated, or non-existent written procedures (SOPs). This problem affected more than 30% of audited measures and activities.
4. Calculation errors were present in about 20% of reported results. For instance, in a measure that required calculating a percentage, staff calculated a rate instead.
5. In about 15% of cases, measures were poorly related to central program efforts. For instance, the program had a measure to report on efforts to clean up contaminated sites, but the City no longer had any sites to clean up.
6. In about 15% of cases, data was inappropriately used, usually by being improperly included or improperly excluded from calculations. For instance, in a measure of the value of structures lost to fires, staff included the value of vehicles lost to fires.
7. In about 15% of cases, there were definition/terminology conflicts between underlying data and the wording of measures or names of products. For instance, in an activity to capture "emergencies responded to," the written procedure required counting several types of non-emergency efforts, such as responses to code violation complaints.

## *Section I: Program Outcome Measure Findings and Recommendations*

### **Program Measure #1.**

*A response time to emergency calls for assistance of 6.2 minutes from receipt of call by dispatch is achieved 90% of the time.*

*-Percentage of Time*

Fire Services staff reported a result of 73.83% in FY 2001/2002.

Fire Services staff extracted all responses to "Priority 1" and "Priority E" calls for service handled by Fire Services. This included responses to calls regarding fires, emergency medical incidents, and hazardous materials situations. This extraction generated 3,637 unique, valid responses out of 18,039 records. Staff sorted the 18,039 records by call number and removed responses as appropriate, as specified by the SOP. For instance, staff deleted those responses that were:

- canceled en route,
- without an on-scene time,
- mutual aid calls to other jurisdictions,
- duplicate calls to the same incident,
- secondary responses to the same call for service

A response time was calculated for each of the 3,637 unique, valid responses as the difference between the "Receipt of call" time to the "On scene" time. These response times were then sorted from shortest (beginning with 9 seconds) to longest. To identify the responses corresponding to the goal of 6.2 minutes, staff located the responses in the list with response times of 6 minutes, 20 seconds. There were 12 calls with response times of 6 minutes, 20 seconds. Staff identified a call around the middle of the 12. This was the 2,685<sup>th</sup> call.

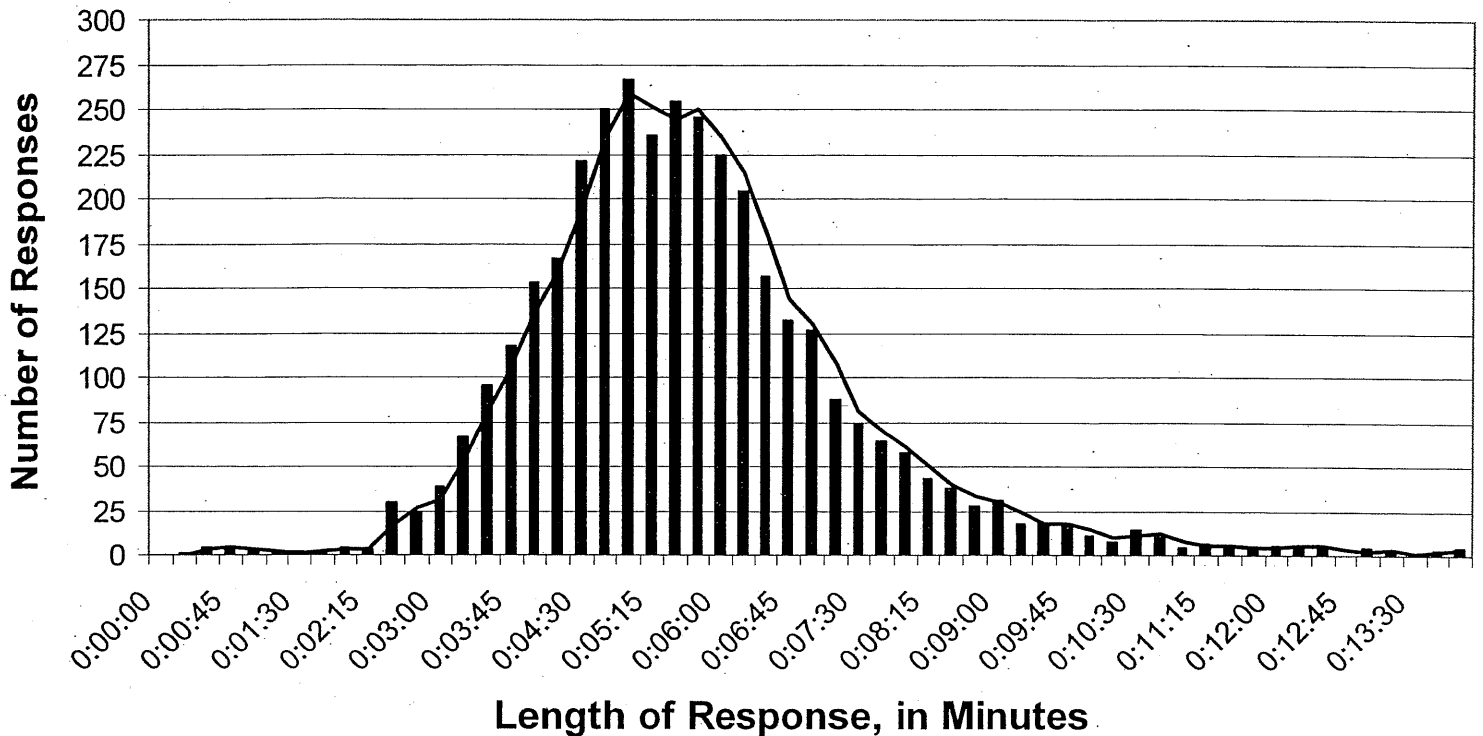
Staff then divided this number - 2,685 - by the number of total responses: 3,637. Staff reported the result - 73.82% - as the result for this measure.

**Finding #1:** Audit staff notes that the "total responses" used to calculate the result is equal to 20% of the total records originally extracted. Audit staff analyzed the data at length, and conferred with knowledgeable senior dispatch staff and senior program analyst staff. No material exceptions were apparent.

The graph below shows the response time of these 3,637 responses.



## Response Times to Emergency Fire, Haz Mat and Medical Calls FY 2001/2002



Note: Graph is truncated on the right

**Finding #2:** A minor calculation error was made. Six minutes, 20 seconds is not the same as 6.2 minutes. Two-tenths of a minute is 12 seconds. Correcting for this error, the reportable result would have been 71.32% of calls responded to within 6.2 minutes.

**Recommendation #1:** When data is reported in this fashion, staff should convert tenths of minutes into seconds prior to carrying out other calculations.

**Finding #3:** The SOP conflicts with the measure. The SOP specifies that the result is to be reported in terms of the length of the individual response falling at the 90<sup>th</sup> percentile of all calls. Yet the measure requires reporting the result as a percentage rather than in terms of minutes. (Had the data been reported in terms of the length of response of the call at the 90<sup>th</sup> percentile, the result would have been 7:47, or 7.78 minutes.)

**Recommendation #2:** Either the measure or the SOP should be revised.

**Finding #4:** The SOP provides inadequate direction for calculating response times. Per the procedure, staff is to review the calls and take out exceptions, such as those calls with

no “on scene” times. Then, the response time is to be calculated as “the elapsed time from receipt of call by dispatch to arrival at scene.” Since various units may be dispatched to – and arrive at – the same scene at different times, there may be several “response times” per incident. In practice, staff eliminates from the calculation all response times except that of the *first* unit arriving.

**Recommendation #3:** The SOP should be revised to codify current practice, which is to use *one* response time to an incident based on the time of the first unit’s arrival.

**Program Measure #2.**

*The Budget/Cost Ratio (Planned cost divided by actual cost) is at 1.0.*

*- Ratio*

Fire Services staff reported a result of 1.03, meaning the program came in under budget.

**Finding #1:** The result was correctly reported based on expenditures as documented in following year’s accounting reports.

**Program Measure #3.**

*A three-year average patient survivability rate of 20% in viable defibrillation cases is achieved.*

*- Rate*

Fire Services staff reported a result of 13.96%.

For the purpose of this measure, “viable” was defined as a patient with an initial heart rhythm of “ventricular fibrillation,” that is, a “shockable” rhythm. The measure is met if 20% of patients with such initial rhythms are defibrillated and survive long enough to be discharged from the hospital.

The data for calculating the result for this measure was tracked and maintained as follows:

- After caring for the patient, the responding fire crew sends an email to the appropriate Lieutenant indicating that the defibrillator was used.
- The Lieutenant compiles the following data for each case: the report of confirmed hospitalization, the report of the fire unit response, the EMS report, the printout of the response times and the report generated by the defibrillator machine.

A spreadsheet supplied to the audit team by the Lieutenant summarizes the following data used to calculate the result reported:

Status	FY '01/02	FY '00/01	FY '99/00
Number of cardiac arrests	62	73	87
Number of "viable" cases	18	16	9
Number discharged alive	3	1	2

The three-year average survivability rate for FY 2001/2002 was calculated as  $(3+1+2) / (18+16+9)$  or  $6/43 = 13.95\%$ . In addition, audit staff requested and received supporting "raw" data for each of the cases in the above summary.

**Finding #1:** The raw data supplied to the audit team does not substantiate the result reported for this measure. The raw data shows that only 1 patient survived long enough to be discharged from the hospital in each of the fiscal years above. Staff was unable to resolve the discrepancy between the raw data and the figures used to calculate the result. If the calculation spreadsheet corrects for errors in the raw data, the reported result is correct. However, if the raw data is correct, the reportable result should have been 7%  $(3/43)$ .

**Recommendation #1:** If this measure is retained, the methodology regarding data capture and use should be codified in detailed in an SOP.

**Finding #2:** This measure on average captures the program's effect on *one* person per year. In FY 2001/2002, staff reported responding to 5,257 medical emergencies. Therefore, since this is the medical response SDP's only program level measure, only the outcome of about 0.03% of this million-dollar Service Delivery Plan's efforts are reflected at the program level.

**Recommendation #2:** The program measure for the medical response SDP should be evaluated for possible replacement by a measure that captures the broader efforts to save life and limb.

#### **Program Measure #4.**

*A three-year average fire loss of 0.015% of total assessed value protected is maintained.  
- Percentage of Assessed Value*

Fire Services staff reported a result of 0.005%.

When a fire occurs, a Fire Inspector estimates the value of the damage to the structure based on a standard square-foot replacement schedule. The schedule is prepared by the publication *Building Standards* and provides cost-of-replacement estimates by type of building and quality of construction. The estimated replacement costs include the cost of completing architectural, structural, electrical, plumbing and mechanical work, as well as an allowance for contractor profits. Since the land and foundation under the structure cannot burn, they are not included in the cost-of-replacement estimates. Although the

estimates vary by type of building and quality of construction, a “rule-of-thumb” value is about \$125 per square foot. The Fire Inspector records the loss estimate on a report and that is subsequently maintained in a database. To calculate the result for this measure, staff extracted the fire loss estimates from the database for the three applicable years and averaged them as follows:

1999/2000: \$1,104,880

2000/2001: \$ 809,408

2001/2002: \$ 416,437

Total        \$2,330,725/3=\$776,908

This total was compared to the projected assessed valuation for a single year, FY 2000/2001. This valuation was taken from the Community Condition Indicators section of the City’s budget document. The value reported in the budget was \$14.9 billion.

The reported result was calculated as follows:  $\$776,908 / \$14,900,000,000 = .0052\%$ .

**Finding #1:** Staff lacked adequate direction to ensure accuracy in the extraction of information from the database. There are numerous types of fires and each type has a code in the database. In order to query the total number of fires, the proper codes must be known. The SOP for this measure specified outdated codes.

**Finding #2:** In the absence of adequate direction from the written procedure, staff extracted loss estimates for a broad range of fire types. Per the SOP, the measure intends to capture losses as a percentage of the cost to rebuild structures. However, the value of losses due to vehicle fires, and possibly some other types of fire losses that should not have been included, were included in the total. The average fire loss therefore appears to have been overstated in the reported result. The exact value of the overstatement is undetermined, but the loss was overstated by at least the average value of vehicle losses, which was \$68,120.

**Finding #3:** There was a calculation error. Since the measure captures losses over three years as a percentage of value over three years, staff should have used an average valuation figure instead of using a figure from a single year.

**Finding #4:** The result was calculated using a vastly inflated “total valuation” figure. The SOP indicates that the calculation should be performed using only the assessed value of the *structure*. That is, the calculation should exclude the value of the contents and land beneath the structure. The figure staff used was the total assessed value, including the cost of the land, contents and structure. As shown in the table that follows, in each of the three years, the structure itself made up less than half of the total assessed value:

Sunnyvale Assessed Values			
	FY 99/00	FY 00/01	FY 01/02
Land	4,892,535,108	5,439,356,629	6,051,744,260
Improvements	6,849,921,831	7,414,795,030	8,294,430,595
Personal Property	2,241,414,447	2,079,834,195	2,757,440,746
Total Assessed	\$13,983,871,386	\$14,933,985,854	\$17,103,615,601
Structural Portion	48.98%	49.65%	48.50%

*Data Source: Santa Clara County Assessor's Office*

Instead of using \$14.9 billion as the valuation figure for FY 00/01, staff should have used \$7.4 billion.

**Finding #5:** The average estimated fire loss for the three years, less the vehicle fire losses, was \$708,572. The three-year average assessed value of structures was \$7,519,715,819. If the calculation had been carried out using these figures, the reported result for the measure would have been .009% instead of .005%.

**Recommendation #1:** If this measure is retained, the SOP should be revised to clearly specify that the measure compares structural damage estimates to structural cost-of-replacement estimates, and which types of fires to include. It should also specify that both the estimated value of losses and the estimated value of structures should be averaged over the three years.

**Finding #6:** The meaning of the measure is obscure. For instance, the reported result, minus the vehicle value, equates to the loss of an estimated 5,600 square feet, or 2 ½ average-sized homes. Using only the assessed value of structures, in FY 2001/2002, more than 9,000 square feet of structure – or about 4 average homes – would have had to burn in order to reach the maximum loss permitted within the goal.

**Recommendation #2:** Staff should consider developing a new measure that reports program performance in terms of square feet of loss or some other more easily understood metric.

#### **Program Measure #5.**

*A three-year average rate of one hazardous substance release to the environment per 100 permitted facilities is maintained.*

*- Average Rate*

Fire Services staff reported a result of 1.03.

Using data tracked on manual worksheets, staff tallied the number of hazardous substance releases as follows:

1999/2000: 10 releases

2000/2001: 3 releases

2001/2002: 7 releases

Average number of releases  $(10+3+7)/3 = 6.67$

Using data tracked on manual worksheets, staff tallied the number of permitted facilities as follows:

1999/2000: 629 permitted facilities in compliance

2000/2001: 640 permitted facilities in compliance

2001/2002: 666 permitted facilities in compliance

Average  $(666+640+629)/3 = 645$ .

Average releases per 100  $= 6.67/6.45 = 1.03$ .

**Finding #1:** Staff used only permitted facilities in compliance, as opposed to total permitted facilities, to calculate the result. Because there are more permitted facilities than permitted facilities in compliance, the reported result would have been somewhat better if total permitted facilities had been used. The SOP specifies use of permitted facilities. How much better the reported result would have been if permitted facilities had been used cannot be determined by the records obtained by audit staff.

**Recommendation #1:** Staff should adhere to the SOP and use all permitted facilities, rather than “complying” permitted facilities, as the basis for calculations.

**Finding #2:** Fire staff did not provide manual tracking sheets for the FY 2000/2001 and FY 1999/2000 figures. Supporting sheets were provided for FY 2001/2002. As such, the reported result could not be substantiated by audit staff.

**Recommendation #2:** Staff should retain all supporting documentation for several years, particularly in those cases when reported results rely on averaging several years of data.

#### **Program Measure #6.**

*A customer satisfaction rating of 90% for Fire Services is achieved.*

*- Rating*

Fire Services staff reported a result of 94.5%.

The SOP for this measure is outdated, as it does not refer to the present methodology for calculating the result for this measure. Fire Services staff calculated a result by using the

Gelfond Group summary of results for the external customer satisfaction survey from June 2002 and December 2001. Staff used the “favorable” results reported for the category of “Fire Protection.” The results 95% and 94%, respectively, were summed and divided by two for a result of 94.5%.

**Finding #1:** Given the absence of a current SOP, staff appropriately and accurately calculated the reportable result.

**Recommendation #1:** Given that the Fire Services program includes more than “Fire Protection,” staff should consider including in future calculations other components of the survey, such as satisfaction with “Response Time to Medical Emergencies” and “Emergency Medical Services.” Staff also may wish to add other components of the Fire Services program to the survey in the future.

**Finding #2:** The survey design could be improved to enhance the reliability and validity of the results obtained. Given that relatively few survey respondents likely actually used Fire Services within the survey period, the survey design would have been stronger if a “screening” question had narrowed the pool of respondents to only those claiming to have had recent experience with these services.

**Recommendation #2:** Although implementing such improvements could be prohibitively expensive or not feasible for other reasons, staff may wish to pursue development of a more robust survey design with respect to this measure.

**Program Measure #7.**

*The number of fires per 1,000 population will be maintained at half the national average.  
-Number of Fires*

Fire Services staff reported a result of 0.53.

Staff explained the data used to calculate this result as follows:

- An internal summary report showed 71 “structure fires” in FY 2001/2002.
- The 2000 Census population figure for Sunnyvale was 133,214.

Fires per 1,000 population was calculated as follows:  $71/133.214 = 0.53$ .

**Finding #1:** The reporting structure of the measure does not make sense, and the SOP does not clarify the issue. The measure itself specifies expressing Sunnyvale’s fire rate *as a percentage* (with the goal of 50%) of the national fire rate. However, the measure requires reporting that percentage in terms of a *number of fires*.

Sunnyvale’s rate of fires was 0.53. The national rate of fires was 6.2.<sup>1</sup> Therefore, Sunnyvale’s rate of fires was a mere 8.5% of the national fire rate. Audit staff could not

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<sup>1</sup> According to the 2000 National Fire Prevention Association (NFPA) report “Fire Loss in the U.S.”

determine how Fire staff should have conveyed this success in terms of “number of fires.” Fire staff simply reported the raw rate of 0.53, without any attempt to compare it to the national rate.

**Finding #2:** The SOP did not specify what types of fires were to be included in the total. However, the National Fire Prevention Association (NFPA), which supplies the nationwide comparison data, defines “fire” as “any instance of uncontrolled burning.” This implies that Sunnyvale’s fire rate should include all types of fires, as opposed to simply structure fires. The program’s internal “Alarm Report” for FY 2001/2002 shows 71 “structure fires,” and 112 “other fires,” for a total of 183.

Again, the SOP does not specify what is to be counted in determining Sunnyvale’s rate. Note that if staff had used 183 fires instead of 71 fires, the rate per thousand would have been 1.37. Audit staff cannot determine the total number of fires that should have been used to calculate this result, but 71 does not appear to encompass the range of blazes captured by the comparison national statistic.

**Finding #3:** The SOP specifies using the average fire rate per thousand for cities of Sunnyvale’s population size. Per NFPA, this rate was 5.3. If Fire Services staff had reported the result based on 183 fires (per finding #2) and compared it to the national average for cities of Sunnyvale’s size, the reported result would have been 25.8% (1.37/5.3). This is still far better than the target goal of 50%.

**Finding #4:** Per Finding #3, staff achieved a rate of 26% of the national average for comparable cities in FY 2001/2002. This means that Fire staff would have met the goal if almost twice as many fires had occurred.

**Recommendation #1:** Audit staff recommends clarifying the measure itself and developing an SOP that better explains what fires are supposed to be included in the calculation and how the calculation should be carried out.

**Recommendation #2:** Management should evaluate whether to retain or decrease the goal of 50%.



## *Section II: Service Delivery Plan Measure Findings and Recommendations*

### **A. SDP – 42201: Emergency Medical Services**

#### **SDP 01 Measure #1.**

*An average response time to emergency medical calls (from dispatch to arrival at scene) of 4.47 minutes is achieved.*

*- Minutes*

Fire Services staff reported a result of 4.42 minutes. The data provided to the audit staff shows that Fire Services staff calculated this average by obtaining all “Priority E” medical calls (13,380 responses.) Then staff eliminated 10,534 records of calls that were:

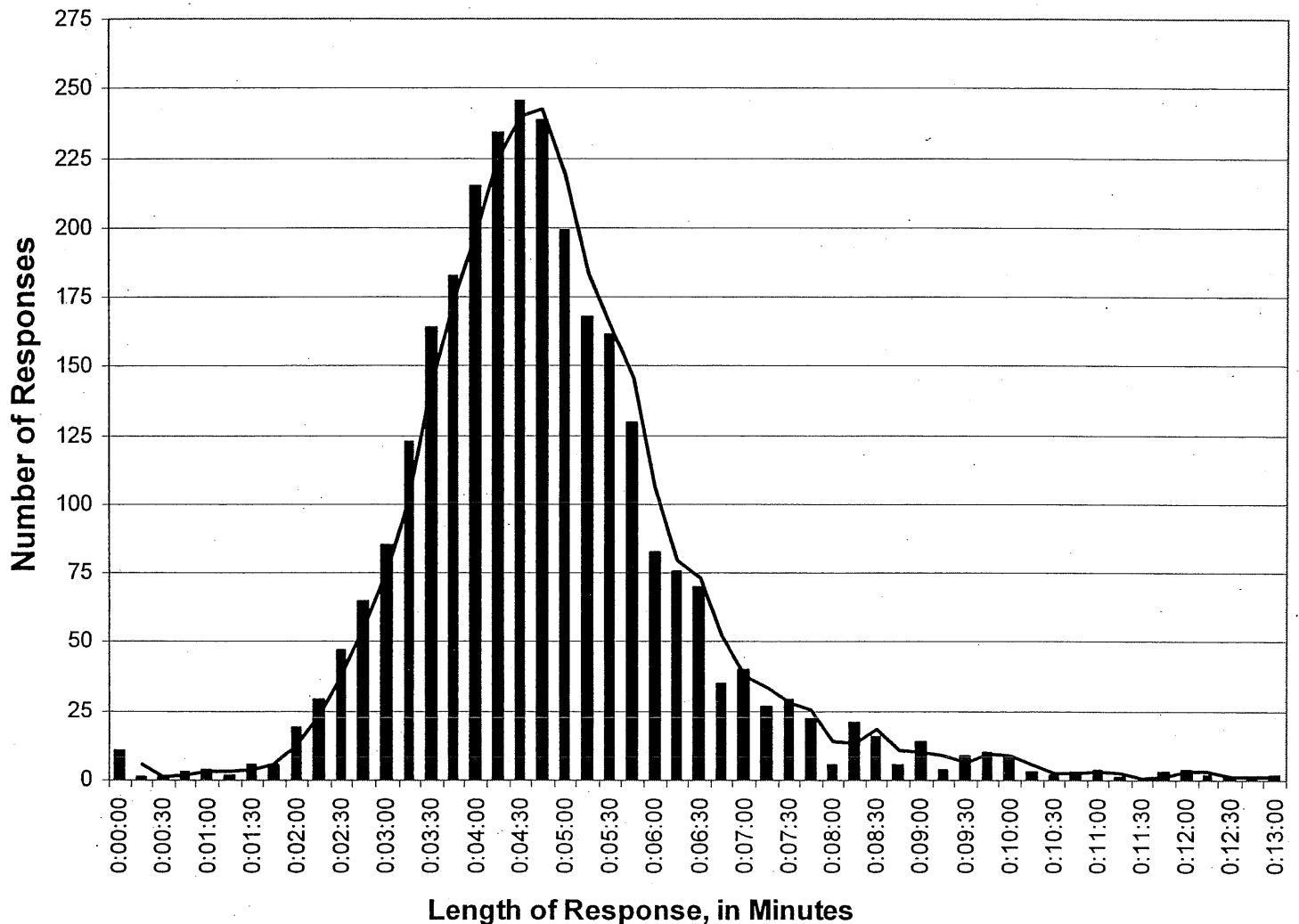
- canceled en route
- duplicate calls for the same incident
- without an on-scene time
- secondary responses to the same incident
- calls for mutual aid

This left 2,852 unique, valid responses. Using a list of 2,846 calls (the reason for the discrepancy of six calls is undetermined) staff calculated the difference between the dispatch time and the “on scene” time for each call. These times were averaged to obtain a result of 00:04:42. Staff reported this result as 4.42 minutes.

**Finding #1:** Audit staff notes that the “total responses” used to calculate the result is equal to 27% of the total records originally extracted. Audit staff analyzed the data at length, and conferred with knowledgeable senior dispatch staff and senior program analyst staff. No material exceptions were apparent.

The graph that follows shows the response times to the 2,852 calls.

## Response Times to Medical Emergency Calls FY 2001/2002



Note: Graph is truncated on the right

**Finding #2:** Four minutes and 42 seconds (00:04:42) is not 4.42 minutes. It is 4.7 minutes. This error materially affected the reported result by erroneously decreasing the reported response time by 6%. Because of this error, staff reported a result that appeared to exceed the goal, when in fact the goal was not met.

**Recommendation #1:** Staff should convert times from seconds into fractions of minutes.

**Finding #3:** The list of response times used to calculate the average included 11 response times of “0.” Note that although this subset of data *appears* to conflict with the overall program-wide data depicted in Outcome Measure #1, which contains no “0” response times, it does not. The two are in fact different data sets. This measure calculates the responses from the *time of dispatch*, rather than *receipt* of the call.

For instance, the emergency medical call on November 11, 2001 from 233 E. Weddell Drive was *received* at 10:16:56 AM. The *dispatch time* and the “on scene” time are both 10:21:07 AM. For purposes of calculating response times to “all emergency calls,” for Outcome Measure #1, this response has an elapsed time of 4 minutes, 11 seconds. For purposes of this SDP measure, however, the same call has an elapsed time of “0.” Inclusion of responses with no response time is inconsistent with the purpose of capturing response times.

**Recommendation #2:** Responses with elapsed times of “0” should be excluded from response-time calculations.

**Finding #4:** The SOP for this measure references emergency call codes that no longer exist.

**Finding #5:** The SOP provides inadequate direction regarding calculation of response times. The procedure indicates that, after staff removes the exceptions (such as responses with no “on scene” times), staff is to total the amount of time elapsed on all calls and divide by the number of calls received. However, the mechanics of the calculation are not specified in the SOP. In practice, staff calculates the response time based on the difference between the time the first unit is dispatched and the time the first unit arrives on scene, whether or not it is the same unit. In practice, other responses to the call are not included in the total.

For example, the following is a simplified selection of the actual data generated by a call for help received on May 7, 2002:

Time Received	Unit Responding	Time Dispatched	Arrival on Scene	Unit Response Time
8:18:49	A	8:19:36	8:25:12	0:05:36
8:18:49	B	8:20:50	8:22:55	0:02:05

Under the existing SOP, the response time for this call could theoretically be calculated in any of the ways that follow:

1). Unit B arrived 2:05 minutes from the time it was dispatched. This is the shortest elapsed time, and therefore the response time to use for this call; or,

2). Unit A arrived 5:36 minutes from the time it was dispatched, and Unit B arrived 2:05 minutes from the time it was dispatched. Both calls (which average 3:51 minutes) should be included in the response time calculation; or,

3). The difference between the *first* dispatch time (by Unit A) and the *first* arrival time (by Unit B) is 3:19 minutes. Therefore, the response time to be reported is 3:19.

As previously indicated, staff calculated the result using methodology #3 above.

**Recommendation #3:** One of these methods should be codified in the SOP. In addition, the call codes referenced in the SOP should be updated.

**SDP 01 Measure #2.**

*A response time to emergency medical calls requiring defibrillator hook-up of 5.8 minutes 40% of the time from the time of receipt of call to shock/no shock indication by defibrillator.*

*-Percentage of Time*

Fire Services staff reported that in 15% of cases, staff achieved a response time of 5.8 minutes from the receipt of the call to the time when the defibrillator machine provided a shock/no shock indication.

When a person goes into cardiac arrest, a defibrillator machine may be used to “shock” the heart “back to life.” The machine itself, when hooked up to the patient, will provide an indication of whether to “shock” the patient or not.

To calculate the result for this measure, staff must obtain data from two sources: the Computer Aided Dispatch system and the defibrillator machine itself. The dispatch system captures the time that the 9-1-1 call came in. The defibrillator machine contains an internal clock that is synchronized to the dispatch system clock. The machine captures the time of the shock/no shock indication on a data card. This information is subsequently uploaded onto a computer. A staff person compiles the two times for each call into one spreadsheet.

The documentation provided to audit staff contains data for calendar 2001 and calendar 2002. Audit staff combined the data for the two halves of FY 2001/2002, which shows 58 calls requiring defibrillator hook up. Of these calls, 57 had calculable response times; one time was missing. Of the 57 calls, 6 had response times of 5 minutes, 48 seconds (5.8 minutes) or less. This data would support a reportable result of 10.53% (6/57).

**Finding #1:** Based on the documentation provided, audit staff calculates the reportable result as 11%, rather than 15%. The reason for the difference is undetermined.

**Finding #2:** The value of this measure is limited by the fact that most cardiac arrest victims will be either dead or brain damaged 5.8 minutes into the episode.<sup>2</sup> Furthermore, Emergency Response staff have said in interviews that it is not uncommon for bystanders to delay calling for help for many minutes. This means that even if staff reaches 40% of victims in 5.8 minutes from receipt of the call, the majority of the people they assist are already dead. For instance, only one of the 57 people who were assisted in the FY 2001/2002 data survived to be discharged from the hospital.

**Recommendation #1:** Staff should consider an alternative measure.

**SDP 01 Measure #3.**

*A three-year average patient survivability rate of 20% in viable defibrillation cases is achieved.*  
- Rate

This measure is the same as Program Outcome Measure #3.

**SDP 01 Measure #4.**

*By-Standers administer CPR in 15% of the total calls involving a non-breathing patient prior to the arrival of emergency personnel.*  
- Percentage of Calls

Fire Services staff reported a result of 14.5%. The data used to calculate this result is captured in written reports prepared by the emergency crews responding to the incident. This data is entered into a spreadsheet.

**Finding #1:** The supporting documentation provided to audit staff shows 10 bystanders administering CPR to 62 victims. This yields a reportable result of 16%, not 14.5%. It appears that staff accidentally counted only 9 of the 10 cases in which CPR was administered, and therefore reported the result as 14.5%, when in fact the result should have been reported as 16%. Actual performance on this measure was therefore better than reported.

**Recommendation #1:** Staff should carefully review all calculations to ensure they are accurate.

**SDP 01 Measure #5.**

*100% of issues identified through the medical oversight program will be resolved within 30 days.*  
- Percentage of Issues

Fire Services staff reported a result of 100%. The program is required to have physician oversight. Sunnyvale contracted with a doctor to fulfill that role. The doctor reviewed

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<sup>2</sup> American Heart Association.

cases and provided guidance to staff regarding clinical issues. To report the result for this measure, staff estimated that all issues were resolved in a timely fashion.

**Finding #1:** The SOP requires maintenance of a log to document this result. Fire Services staff did not attempt to document the efforts with respect to this measure. Reporting a result of 100% success without any documentation could potentially make staff vulnerable to credibility questions.

**Recommendation #1:** Staff should document the basis for reportable results. Among the options available to staff for documenting this outcome is the maintenance of a simple log throughout the fiscal year, as required by the SOP. Such a log could list the issues raised, the date the issue was raised, a brief description of the resolution and the date of resolution.

**SDP 01 Measure #6.**

*98% of fire-based personnel will have current certification in all mandated emergency medical response skills, including defibrillation and CPR.*  
- Percentage of Personnel

Fire Services staff reported a result of 84.52%. This result was based on staff's belief that the measure was intended to capture the proportion of fire personnel who were EMT certified. Staff calculated the result by dividing the 71 fire staff who were EMT certified by the total of 84 fire staff for a result of 84.52%. However, per the SOP, the measure is met as long as staff is First Responder certified; EMT certification is not required.

**Finding #1:** Since all fire staff possess First Responder certification as required by Title 22, the reported result should have been 100%. The error was material because it changed the reported result from one that exceeded the goal to a result that appeared to be well below the level intended.

**Finding #2:** All of the training required by this measure is mandated by law. Therefore, all fire recruits receive this training in the academy. This measure captures a *condition of employment*, not the outcome of program efforts. It is possible that some certifications could lapse, particularly for staff on disability, but this could easily be dealt with as an administrative issue, rather than being tracked as an "outcome" of program efforts.

**Finding #3:** The training referenced in this measure is required by law. Setting the goal at 98% suggests that the department responsible for law enforcement is willing to permit 2% of Fire personnel to violate the law. The "2% gap" was apparently intended to cover those instances in which certifications may lapse for legitimate reasons, such as disability.

**Recommendation #1:** This measure should be eliminated. However, if a training measure is desired, staff may wish to specify that a certain percentage of fire personnel shall be EMT certified.

**Recommendation #2:** If the measure is retained, staff should consider changing the goal from 98% to 100%, with legitimate “exceptions” defined and allowed by the SOP. Doing so would ensure that Fire Services is not penalized for circumstances beyond staff’s control, while also removing the inadvertent implication that it’s “OK” to fall a bit short of state mandates.

**SDP 01 Measure #7.**

*A customer satisfaction rating for First Responder Emergency Medical Services of 90% is achieved.  
- Rating*

Fire Services staff reported a result of 85%.

There was no current SOP for this measure. Fire Services staff calculated the result by using the Gelfond Group citywide summary of results for the external customer satisfaction survey from June 2002. Staff used the percentage of “favorable” results for the category of “Emergency Medical Services.”

**Finding #1:** Given the absence of an SOP for this measure, staff appropriately calculated the reportable result.

**Finding #2:** The citywide survey queried respondents regarding their satisfaction with “response time to medical emergencies” and their satisfaction with “emergency medical services.” There is no direction for staff regarding whether to use just one of these categories or whether to report their combined result. Had the results for these two questions been averaged, the reportable result would have been 87%.

**Recommendation #1:** An SOP that reflects the current survey methodology should be developed.

**Finding #3:** There are two elements of the survey design that could be improved to enhance the reliability and validity of the results obtained. First, it’s likely that relatively few survey respondents actually used emergency medical services within the survey period. The survey design would have been stronger if a “screening” question had narrowed the pool of respondents to only those claiming to have had recent experience with these services. Second, “emergency medical services” is not defined and could be construed to mean different things to different respondents.

**Recommendation #2:** Although implementing such improvements could be prohibitively expensive, management may wish to pursue development of a more robust survey design with respect to this measure.

## B. SDP – 42202: Hazardous Substances

### **SDP 02 Measure #1.**

*95% of all calls for hazardous substance services are fully stabilized utilizing in-house personnel and resources.  
- Percentage of Calls*

Fire Services staff reported a result of 100%.

The program's FY 2001/2002 Alarm Report provided to the audit team indicates that staff responded to 249 hazardous materials calls. Of these 249 calls, 7 pertained to actual hazardous releases, according to the Fire & Environmental Services activity report provided to the audit team. In interviews, staff indicated that none of the calls required outside assistance.

**Finding #1:** There is no documentation to show that City staff stabilized the 7 incidents without outside assistance. Staff is not specifically tracking calls by whether they require outside assistance. Audit staff cannot substantiate the reported result.

**Recommendation #1:** Staff should track via a log or similar mechanism instances where outside agencies provide assistance.

**Finding #2:** Even if the City had required outside assistance to stabilize every single hazardous release, staff would have exceeded the goal in FY 2001/2002. This is because the calculation methodology as specified in the SOP is flawed.

The SOP specifies calculation of the result as follows:

Number of calls that did not require outside assistance to stabilize  
Total number of calls

In this case, the calculation would be:  $249/249 = 100\%$ .

Note, however, that only 7 of these calls in FY 2001/2002 were reports of *actual* hazardous releases. Therefore, 242 (or 97%) of the total calls were not reports of actual hazardous releases. As such, these 97% by definition did not "require stabilization" by any agency. Therefore, if all 7 hazardous releases had required outside agency assistance, the calculation would have been:

$242/249 = 97\%$ , two percentage points above the goal.

**Recommendation #2:** If this measure is retained, staff should revise the SOP to calculate the result based on responses to incidents requiring stabilization, rather than to all calls. Under that methodology, the calculation of this result would have been:



7 actual hazardous releases  
7 hazards stabilized by City staff

**Finding #3:** See the findings related to the makeup of the 249 calls in Activity 422350: Emergency response to hazardous releases.

**SDP 02 Measure #2.**

*A compliance rate of 90% is maintained for all hazardous substance permitted facilities.*  
*- Rate*

Fire Services staff reported a result of 90.49%.

The number of permitted facilities and facilities in compliance is manually tracked by accounting period on the Fire and Environmental Services Bureau report. The FY 2001/2002 report includes a “running total” carried over from prior years, as well as additions for new permits issued and deletions for sites where permits are no longer required. This manual sheet depicts 736 total hazardous materials permitted facilities. The facilities in compliance was listed as 666. Therefore, the result was calculated as  $666/736 = 90.49\%$ .

**Finding #1:** The data is tracked in compliance with the SOP.

**SDP 02 Measure #3.**

*The Hazardous Materials permit will be issued an average of three working days from the time of approval of the fire protection systems.*  
*- Number of Working Days*

Fire Services staff reported a result of 0. This result was reported because there was no mechanism in place for tracking the number of days between approval of the fire protection systems and issuance of the permits. The apparent intent of this measure is to prevent “holding up” businesses from opening as they wait for a permit. In interviews, however, Fire Services staff indicated that as a matter of practice, businesses routinely open and operate while permits are still pending.

**Finding #1:** The SOP specifies that staff is to keep a log in order to document the reported result for this measure. Staff has no means in place to track the length of time between approval of fire permits and issuance of permits and therefore the result reported cannot be substantiated.

**Finding #2:** Since efforts to ensure rapid turnaround times may increase costs, there should be a clear benefit associated with speed. Given that businesses proceed to open without permits, it’s not clear what benefit is gained by attempting to ensure an average 3-day turnaround for permits.

**Recommendation #1:** Staff should either eliminate the measure or develop and implement a mechanism for tracking the result.

**SDP 02 Measure #4.**

*100% of City-owned contaminated sites are in compliance with Regional Water Quality Control Board (RWQCB) orders.  
- Percentage of Sites*

Fire Services staff reported a result of 100%. According to Fire Services staff, the measure is outdated. There are no longer any City-owned contaminated sites and no future sites are anticipated. Staff reported 100% as an equivalent of "N/A."

**Finding #1:** The result should have been reported as "N/A" in FY 2001/2002. By reporting the result as "100%," staff implied success in meeting a goal, when in fact there was no goal to meet.

**Recommendation #1:** No result should be reported for this measure in future years and ultimately the measure should be eliminated.

**SDP 02 Measure #5.**

*A three-year average rate of one hazardous substance release to the environment per 100 permitted facilities is maintained.  
- Average Rate*

This measure is the same as Program Outcome Measure #5.

**SDP 02 Measure #6.**

*The number of hazardous substance emergency response incidents will be maintained at an average of 28 incidents per year over a three-year period.  
- Number of Incidents*

Fire Services staff reported a result of 11 incidents.

The SOP specifies reporting incidents coded as follows:

- 41 (Flammable gas or liquid condition found at the scene.)
- 42 (Toxic condition found at the scene.)

The result was calculated as the average number of recorded hazardous material releases found at the scene:

FY 1999/2000: 7  
FY 2000/2001: 4  
FY 2001/2002: 22

The data is recorded on the City's internal "Alarm Report." Fire staff provided the FY 2001/2002 Alarm Report, which shows 22 incidents.

**Finding #1:** Although the 22 incidents were recorded as actual hazardous situations, it appears that 15 of these calls were erroneously coded as actual hazardous situations.

In Activity 422230 - "Determine Cause of Hazardous Substance Releases," Fire staff reported investigating 7 actual toxic releases. In interviews, Fire personnel indicated that there were only 7 hazardous releases. Fire Services staff indicated that they received many calls in FY 2001/2002 from people panicked by the anthrax terrorism, which sickened or killed numerous people in late 2001. Audit staff speculates that some of those "panic" calls were coded such that they became counted as toxic releases.

Had the calculation been carried out using 7 releases instead of 22 in FY 2001/2002, the reported result would have been better. The result reported should have been an average of 6 incidents, rather than an average of 11 incidents  $(7+4+7)/3 = 6$ .

**Finding #2:** Audit staff reviewed the 13 Incident Type Reports provided as documentation of the year-end "Alarm Report." Audit staff was able to count the number of incidents corresponding to codes 41 and 42 in the first eight period reports. Beginning with reporting period 9, the system codes had changed. After that point, audit staff had to count incidents based on the incident description. Because of the different coding system, audit staff came to a different total based on the reports for periods 9, 10, 11 and 13. Audit staff counted 35 incidents in FY 2001/2002 whose codes or descriptions appeared to be consistent with this measure. Again, it appears likely that 28 of the 35 incidents were coded as actual toxic situations, when in fact they were calls about perceived incidents.

**Recommendation #1:** Staff should revise the SOP where necessary to capture new incident codes for this measure.

**Finding #3:** Supporting documentation for number of incidents in FY 2000/2001 and FY 1999/2000 was not provided to the audit team. Therefore, audit staff cannot substantiate the result reported.

**Recommendation #2:** Staff should retain all documentation of data used to report outcome results.

**SDP 02 Measure #7.**

*A customer satisfaction rating of 90% for the Provision of Hazardous Services is achieved.*

*- Rating*

Fire Services staff reported a result of 94.5%. The SOP for this measure is outdated and no longer valid. The result was reported based on the Citywide survey conducted by the Gelfond Group.

**Finding #1:** There is no survey data related to satisfaction with “Hazardous Services.” In the absence of the data, staff reported the same result here that was obtained for Program Outcome Measure #6 – satisfaction with “Fire Protection.”

**Recommendation #1:** A question related to this measure should either be included in future surveys or the measure should be eliminated. In the meantime, the reported result should be “N/A.”

**Recommendation #2:** The SOP should be revised to reflect the current methodology.

## C. SDP – 42203: Fire and Catastrophic Events

### **SDP 03 Measure #1.**

*An average response time to fire calls of 4.5 minutes from dispatch to arrival at scene is achieved.  
- Minutes*

Fire Services staff reported a result of 5.05 minutes. The result was calculated by extracting from the dispatch system the total number of records for calls to which Fire personnel responded. There were 4,657 records, of which 764 represented unique, valid responses. Per the SOP, Fire staff eliminated from the calculation the 3,893 records that were:

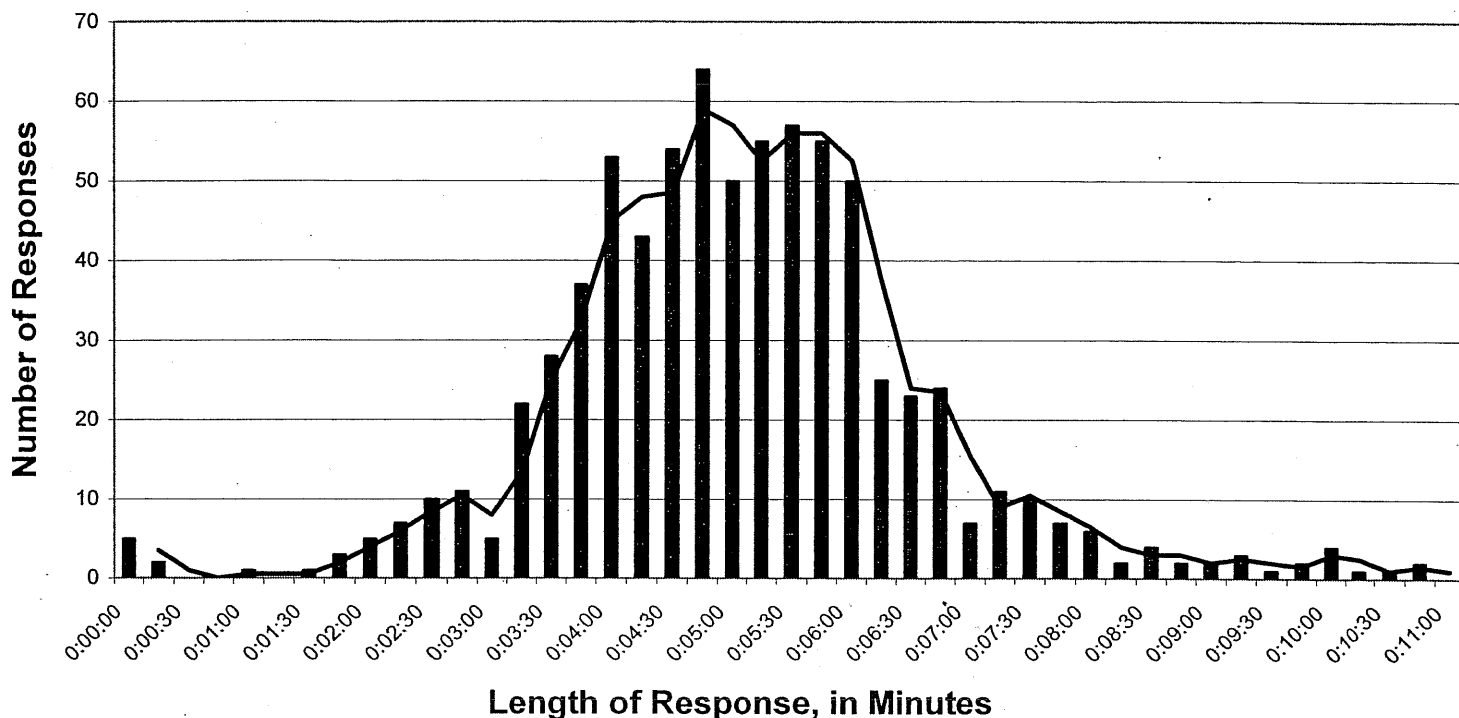
- canceled en route,
- duplicate calls for the same incident,
- secondary responses to the same incident,
- without an on-scene time,
- calls for mutual aid

Staff calculated the difference between the dispatch time and the “on scene” time for each of these 764 responses. The average length of these responses was 00:05:05.

**Finding #1:** Audit staff notes that the “total responses” used to calculate the result is equal to 16% of the total records originally extracted. Audit staff analyzed the data at length, and conferred with knowledgeable senior dispatch staff, senior program analyst staff and Fire staff regarding the process. No material exceptions were apparent.

The response times of the 764 responses are illustrated in the following graph.

## Response Times to Emergency Fire Calls FY 2001/2002



Note: Graph is truncated on the right

**Finding #2:** The result should have been reported as 5.08 minutes, rather than 5.05 minutes. Although this discrepancy is minor, repeating this calculation error in the future could result in material discrepancies with the actual reportable result. (See SDP 42201 Measure #1.)

**Recommendation #1:** Staff should report the result in the form of minutes, rather than minutes and seconds.

**Finding #3:** The SOP, which has no signature or date, provides minimal direction regarding which responses should be excluded from the calculation. It says only that “a review of the calls will be made and exceptions will be excluded.”

**Recommendation #2:** The SOP should be improved to provide better direction to staff regarding which responses to exclude from the calculation.

### **SDP 03 Measure #2.**

*An in-service rate of 98% for emergency apparatus is maintained.*  
- Rate

Fire Services staff reported a result of 100%. Fire staff was unable to provide documentation for the result reported. In interviews, the management of both the Vehicle Program (Program 763 - Provision of Vehicles and Motorized Equipment) and Fire Services indicated that the in-service time of emergency apparatus is *entirely dependent* on the efforts of the Vehicle Program. Fire Services staff does not maintain emergency apparatus. The Vehicle Program records for FY 2001/2002 indicate that the in-service time for fire emergency apparatus was as follows:

- Fire trucks: 96.42%
- Pumpers: 97.40%
- Rescue trucks: 99.24%

**Finding #1:** Fire vehicle “up time” is *entirely dependent* on the efforts of the Vehicle Program. The Vehicle Program has an outcome measure for vehicle in-service time that includes the in-service times for Fire apparatus.

**Recommendation #1:** Since the in-service time for these vehicles is included in another measure, and since Fire Services does not control or devote resources to this outcome measure, it should be deleted from the Fire Services program.

**Finding #2:** There is no documentation for the reported result of 100%. Based on the records from the Vehicle Program, which show an average in-service percentage for Fire apparatus of 97.7%, performance appears to have been overstated.

**Recommendation #2:** Fire Services personnel should document reported results.

**Finding #3:** Audit staff was unable to locate a signed, dated SOP. The unsigned SOP provides unclear direction as to the calculation methodology. The SOP states: “The number of days an apparatus is out of service will be logged by the Staff Maintenance Officer. The total number of days when the fleet falls below full staffing will be subtracted for the total number of days in the time period selected. The resulting number will be divided by the total number of days in the period selected.”

**Recommendation #3:** If the measure is retained, the SOP should be revised to clarify how staff is to complete this calculation.

### **SDP 03 Measure #3.**

*A three-year average rate of two fire incidents per 100 permitted facilities is maintained.*  
- Number of Fire Incidents

Fire Services staff reported a result of 2.3 incidents.

Fire staff documentation provided to the audit team shows the following data and calculations:

Fiscal Year	Fires in Permitted Facilities	Permitted Facilities in Compliance / 100	Fires Per 100 Permitted Facilities
2001/2002	3	7.73	2.58
2000/2001	3	7.55	2.51
1999/2000	4	7.68	1.92
<b>3-Year Average</b>			<b>2.3</b>

**Finding #1:** The SOP requires calculation of the result based on total permitted facilities. The documentation provided to the audit team indicates that the calculation was performed using the number of permitted facilities *in compliance*. Whether this discrepancy resulted in a material difference in the reported outcome is undetermined.

**Recommendation #1:** Either the SOP should be revised to specify calculation based on facilities in compliance, or the calculation methodology should conform to the SOP.

**Finding #2:** Audit staff did not receive documentation of the data for either of the two years prior to FY 2001/2002. Therefore, the result reported cannot be verified by audit staff.

**Recommendation #2:** Staff should retain all documentation for calculations.

**SDP 03 Measure #4.**

*A compliance rate of 90% is maintained for all operation permitted facilities.  
- Rate*

Fire Services staff reported a result of 93.12%.

**Finding #1:** Audit staff was unable to determine how the reported result was calculated. The "Fire and Environmental Services Bureau Activity" report provided by Fire Services shows a total of 780 operations permits at the end of the fiscal year, and 773 permitted facilities in compliance, for a rate of 99%. The reported result therefore appears to have understated program performance.

**Recommendation #1:** Fire Services staff should clearly document all calculations of reported results.

**SDP 03 Measure #5.**

*A three-year average fire loss of 0.015% of total assessed value protected is maintained.  
- Percentage of Assessed Value*

This measure is the same as Program Outcome Measure #4.

**SDP 03 Measure #6.**

*The time from when a new business file is received to issuance of initial operations permit is an average of eight working days.  
- Number of Working Days*

Fire Services staff reported a result of 6.76 working days.

**Finding #1:** Fire Services provided inadequate documentation of the reported result. The calculation worksheet shows  $115/17 = 6.76$ , but no explanation or documentation for the figures provided to audit staff. Program management indicated in interviews that no log was kept, as required by the SOP. Audit staff cannot verify the reported result.

**Recommendation #1:** Fire Services should clearly document all calculations of reported results.

**SDP 03 Measure #7.**

*Fires are contained to the structure of origin after arrival to scene in 90% of all structure fires over the three-year average.  
- Percentage of Structure Fires*

Fire Services staff reported a result of 100% of structure fires.

Fire Services staff tracks the number of "exposure fires" on the department's "Alarm Report." The FY 2001/2002 Alarm Report shows "0" exposure fires. Therefore, 100% of fires in that year were contained to the structure of origin.

**Finding #1:** Audit staff did not receive Fire Services documentation of the data for either of the two years prior to FY 2001/2002. Therefore, audit staff cannot verify the reported result.

**Recommendation #1:** Staff should retain all documentation for calculations.

**Finding #2:** The usefulness of this measure as an indicator of annual program outcomes is questionable. Audit staff reviewed reported results from FY 1999/2000 through FY 2003/2004 and found no reported fires caused by failure to contain a blaze to its original structure. This suggests that it would be extraordinarily rare for there to be a 3-year period in which more than 10% of structure fires spread to other facilities. If such an extremely rare circumstance were to occur, it would be acceptable under the existing



goal. Given that, it's not clear what value there is in setting the acceptable "fire spread rate" at 10%. It seems highly unlikely that such a standard would not be met.

**Recommendation #2:** Staff should revise or eliminate the measure.

**SDP 03 Measure #8.**

*A customer satisfaction rating of 90% for Fire and Catastrophic Event Services.  
- Rating*

Fire Services staff reported a result of 94.5%.

Fire Services staff calculated a result by using the Gelfond Group summary of results for the external customer satisfaction survey from June 2002 and December 2001. Staff used the "favorable" results reported for the category of "Fire Protection." The results 95% and 94%, respectively, were summed and divided by two for a result of 94.5%.

**Finding #1:** There is no SOP for this measure. Given the absence of an SOP, staff appropriately and accurately calculated the reportable result.

**Recommendation #1:** Staff should develop an SOP.

**SDP 03 Measure #9**

Defunct

Audit staff did not audit this inactive measure.

**SDP 03 Measure #10.**

*The number of fires per 1,000 population is maintained at half the national average.  
- Percentage of National Average*

Fire Services staff reported a result of 0.53%.

Note the similarity between this measure and Outcome Measure #7, which is:

*The number of fires per 1,000 population is maintained at half the national average.  
- Number of Fires*

Staff explained the data used to calculate this result as follows:

- An internal summary report shows 71 "structure fires" in FY 2001/2002.
- The 2000 Census population figure for Sunnyvale is 133,214.

Fires per 1,000 population was calculated as follows:  $71/133.214 = 0.53$ .

**Finding #1:** Staff reported Sunnyvale's calculated *rate* of fires (0.53), rather than the rate *as a percentage* of the national average rate of fires. Per the SOP, the result should have been reported as 8.5%, the percentage of the national average.

**Recommendation #1:** Staff should convert the city's rate into a percentage of the national rate.

**Finding #2:** All of the findings and recommendation applicable to Program Outcome Measure #7 also apply to this measure.

### *Section III: Activity Findings and Recommendations*

#### **Activity 422010**

##### *Provide EMS*

##### *An Emergency Responded To*

Fire Services staff reported a result of 5,257 emergencies.

**Finding #1:** The basis for the total number of calls reported is undetermined. Raw data and summary data supplied by Fire Services shows a wide range of call volumes. Since the SOP does not specify whether canceled or duplicated calls are to be included or excluded from the total reported here, audit staff has no way to determine whether the reported figure is reasonably consistent with call volumes from the Computer Aided Dispatch System or the California Fire Incident Reporting System. The program's FY 2001/2002 Alarm Report, which is a manual tracking system, lists 5,333 calls for this activity. Using monthly "Type of Situation" reports supplied by Fire Services, audit staff estimates approximately 4,828 responses fit this activity category. How Fire Services staff arrived at the 5,257 figure reported is undetermined.

**Recommendation #1:** Fire Services staff should develop a mechanism for tracking these calls, or use the call total used for calculation of SDP 42201 Measure #1 (Average response time to emergency medical calls).

**Finding #2:** Although the name of this activity is "Provide Emergency Medical Service," and the product is "An Emergency Responded To," the SOP requires including a range of responses, some of which would not commonly be considered "medical emergencies." For instance, some instances captured here would never require any type of medical care. The SOP specifies that the following 16 call types be counted here:

- 30 - Rescue, Emergency Medical Call; insufficient information
- 31 - Emergency medical assist
- 32 - Emergency medical call
- 33 - Person locked in
- 34 - Person lost
- 35 - People trapped, caught, buried
- 36 - Drowning, potential drowning
- 37 - Electrocution
- 39 - Rescue, Emergency Medical call not classified above
- 51 - Person in distress, including individuals who are locked in, locked out, lost, needing a ring removed, needing assistance returning to bed, where no medical care is provided
- 54 - Animal problem
- 55 - Public service assistance

- 57 - Cover assignment/standby at fire station
- 61 - Incident cleared prior to arrival
- 66 - EMS call where injured parties have been transported or left scene prior to arrival
- 69 - Good intent call: insufficient information to classify further

**Recommendation #2:** Staff should either broaden the definition of services provided in this activity, or capture non-emergency services in another activity.

**Finding #3:** In this activity, Fire Services staff reported responding to 5,257 emergency medical calls. In the outcome measure for response times to emergency medical calls, staff used 2,852 responses. This difference is due to differences in the types of calls included in each total. However, a reader could easily misconstrue that the average response time reported depicts the speed with which staff handled 5,257 calls, rather than 2,852 responses.

**Recommendation #3:** Staff may wish to report the total number of responses used to calculate response times to medical emergencies as the total number of calls for this activity.

<p style="text-align: center;"><b>Activity 422020</b>  <i>Provide Emergency Medical Oversight</i>  <i>A Case Reviewed</i></p>
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Fire Services staff reported a result of 32 cases.

The FY 2001/2002 “alarm report” lists 32 EMS cases reviewed.

**Finding #1:** Audit staff was unable to locate a log sheet of cases reviewed. Logging of cases is required by the SOP. Therefore, audit staff was unable to verify the reported result.

**Recommendation #1:** Fire Services should maintain/retain the log sheet for this activity.

<p style="text-align: center;"><b>Activity 422030</b>  <i>Provide Community Education – EMS</i>  <i>Number of People Reached</i></p>
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Fire Services staff reported a result of 276 people reached.

**Finding #1:** Audit staff cannot substantiate the reported result. Audit staff reviewed every Engine Company Activity Summary Sheet provided by Fire Services and summed the numbers listed for “Audience for Community Education” for EMS. The total count was 305 people. The Engine Company Activity summary for the year lists 287 products.

The reason for the discrepancy between the total reported by the engine companies, the summary total and the total reported products is undetermined.

**Finding #2:** The SOP requires tracking the products via class attendance rosters. No rosters were provided to audit staff for this activity.

**Recommendation #1:** Fire staff should track these products using rosters and should retain all information used to calculate the result.

**Activity 422200**

*Provide for Compliance of Permitted Facilities – Environmental  
A Permitted Facility in Compliance*

Fire Services staff reported a result of 666. This figure is reported on the Fire and Environmental Services Bureau report for the year, which is supported by the monthly manual tracking sheets supplied to audit staff.

**Finding #1:** No exceptions were noted.

**Activity 422220**

*Provide Oversight of City Cleanup  
- A City-Owned Site in Compliance*

Fire Services staff reported a result of 0.

**Finding #1:** Fire Services staff indicated that the City no longer owns any contaminated sites. The reported result should have been N/A.

**Recommendation #1:** This activity should be eliminated.

**Activity 422230**

*Determine Cause of Hazardous Substance Releases  
An Investigation Completed*

Fire Services staff reported a result of 7. This total is reflected on the Fire and Environmental Services Bureau summary report, and is supported by the monthly “Stats - Hazmat” tracking reports supplied to audit staff.

**Finding #1:** No exceptions were noted.

**Activity 422240**

*Provide for Community Access to Hazardous Substance Files and Info  
A File Reviewed*

Fire Services staff reported a result of 99.

The summary Fire and Environmental Services report shows 92 files reviewed. However, the monthly "Stats – Hazmat" tracking reports provided to audit staff total to 89 files reviewed. However, the tracking report for period 4 is missing.

**Finding #1:** Fire Services staff documented 89 products. The 99 products reported cannot be verified by the audit staff.

**Recommendation #1:** Staff should retain all period reports used to document year-end results.

**Finding #2:** There were no work hours charged to this activity. Management indicated that the work hours for this effort were charged to a different activity.

**Recommendation #2:** Work hours should be charged to the activity where the work is performed.

**Activity 422300**

*Provide Supervision – Environmental  
Work Hours*

Fire Services staff reported a result of 1,416. Products are work hours and were recorded on weekly timecards. Audit staff did not attempt to ascertain the validity of hours charged.

**Activity 422310**

*Provide Initial Training – Environmental  
Work Hours*

Fire Services staff reported a result of 149. Products are work hours and were recorded on weekly timecards. Audit staff did not attempt to ascertain the validity of hours charged.

### **Activity 422350**

#### *Provide Emergency Response to Hazardous Substance Releases - An Emergency Responded To*

Fire Services staff reported a result of 249. The SOP specifies capturing the following response codes in this activity:

- 41 - Flammable gas or liquid condition.
- 42 - Toxic condition. Included are hazardous materials spills and reaction of chemicals, clean up and disposal of abandoned materials or potential threatened release. Also includes other hazardous materials releases not captured elsewhere.
- 43 - Radioactive condition.
- 44 - Electrical arcing, shorted electrical equipment. Included are power lines down and incidents where disconnection of the electrical energy clears the emergency.
- 45 - Oil burner delayed ignition (no fire outside firebox.)
- 46 - Vehicle accident, potential accident.
- 47 - Explosive present.
- 48 - Attempted burning, illegal action. Included are situations where incendiary devices fail to function.
- 49 - Hazardous condition, standby, not classified above.
- 67 - Hazardous material release investigation with no hazardous condition found.

**Finding #1:** It appears that a few products may not have been counted. Audit staff reviewed the 13 Incident Type Reports provided as documentation of the reported result. Audit staff was able to verify the number of incidents reported in the first eight reporting periods. Beginning with reporting period 9, the coding of incidents had changed. In the absence of codes to identify which incidents are to be captured in this activity, audit staff had to infer the appropriate count based on the incident description. Because of the different coding system, audit staff came to a different total for periods 9, 10, 11 and 13. Audit staff estimated 255 incidents in FY 2001/2002 whose codes or descriptions appeared to be consistent with this activity's products. Fire Services staff reported a result of 246 – 9 fewer incidents than estimated by audit staff.

**Recommendation #1:** The SOP should be revised whenever coding changes occur.

**Finding #2:** By definition, “code 67 – Hazardous material release investigation with no hazardous condition found,” provides information about a situation that required response but that was not, in fact, an emergency. Capturing responses to incidents that are reported as emergencies but that are not emergencies is inconsistent with the activity product, which is “an emergency responded to.” It may be important to capture the extent to which staff must respond as if an actual emergency exists – particularly in light of the fact that such responses consume resources and therefore require budgeted funds. However, accounting for non-emergency incidents in an emergency activity is not appropriate. Counting the products in this fashion results in different totals than are

reflected in other “emergency response” measures. These differences could cause a reader to either question the validity of the figures reported, or to make erroneous assumptions about program performance. Specifically, the following figures were reported for the same fiscal year:

A. The 3-year average number of hazardous substance emergency response incidents: 11. (SDP 42202 Measure #6.) Note that the average included the reported total of 22 incidents for FY 2001/2002.

B. The number of emergency responses to hazardous substance releases: 249. (Activity 422350.)

C. The number of investigations to determine cause of hazardous substance releases: 7. (Activity 422230.)

For instance, a reader could combine “B” and “C” above, and erroneously conclude that investigations to determine the cause of hazardous releases are rarely fruitful.

**Recommendation #2:** There are a number of possible improvements that would address the *appearance* of data or performance problems. For instance, staff should consider developing a new activity to capture reported emergencies that are not actual releases. A lesser option would be to change the product from “An emergency responded to” to “A response to reported hazards,” or some similar product definition.

#### **Activity 422520**

*Provide for Compliance of Permitted Facilities – Fire Prevention  
- A Permitted Facility in Compliance*

Fire Services staff reported a result of 1,470.

This data is tracked manually and appears on the year-end Fire and Environmental Services Bureau Activity report. The report lists 773 permitted facilities in compliance and 697 “complex” facilities in compliance, for a total of 1,470.

**Finding #1:** The 1,470 figure conflicts with the 773 permitted facilities in compliance used to calculate the result for SDP 42203 Measure #4: “A compliance rate of 90% is maintained for all operation permitted facilities.” However, the figure reported here is correct based on the SOP for this activity. The SOP specifically requires the total of the complying permitted facilities reported in the outcome measure, plus the total of complying non-permitted “complex” facilities. It should be noted that in the unsigned SOP provided to audit staff, the title of the activity is “A permitted *or complex* facility in compliance.” A reader is likely to assume that the compliance rate reported in the outcome measure (SDP 42203 #4) applies to 1,470 facilities, when in fact it applies to about half that total.



**Recommendation #1:** Either the name of the activity should be changed to reflect the true contents of the total, or the SOP should be revised to exclude complex facilities.

**Activity 422530**

*Provide for Compliance of Non-Permitted Facilities – Fire Company  
- A Non-Permitted Facility in Compliance*

Fire Services staff reported a result of 5,178. The total is substantiated by staff's tracking of products on the Engine Company Activity sheets.

**Findings:** No exceptions were noted.

**Activity 422540**

*Determination of Fire Cause  
An Investigation Completed*

Fire Services staff reported a result of 50.

**Finding #1:** The documentation supplied to the audit team indicates there were 47 investigations conducted, with the cause of the fire determined in 46 cases. It appears that 47 investigations should have been reported, rather than 50 investigations.

**Recommendation #1:** Total products reported should be supported by the documentation supplied.

**Observation:** Staff indicated in the calculations for reported outcomes for Program Measure #7 and SDP 42203 Measure #10 that there were 71 structure fires in Sunnyvale in FY 2001/2002. The documents supplied to audit staff indicate there were 112 "other" fires, for a total of 183. The reason that only 50 of the total 183 fires were counted as "investigated" appears to be that the SOP specifies that only the efforts of Fire Cause Investigators are captured in this activity.

**Activity 422600**

*Provide Supervision – Fire Prevention  
Work Hours*

Fire Services staff reported a result of 1,695. Products are work hours and were recorded on weekly timecards. Audit staff did not attempt to ascertain the validity of hours charged.

### **Activity 422610**

*Provide Initial Training – Fire Prevention  
Work Hours*

Fire Services staff reported a result of 154. Products are work hours and were recorded on weekly timecards. Audit staff did not attempt to ascertain the validity of hours charged.

### **Activity 422650**

*Provide Emergency Response to Fires and Catastrophic Events  
An Emergency Responded To*

Fire Services staff reported a result of 1,159 emergencies responded to.

The SOP specified a broad range of responses that were to be included in this category, as follows:

- 20 different types of fires and explosions
- Water, smoke, odor problems
- Unauthorized burning
- Otherwise unclassified service calls
- Wrong location
- Controlled burning
- Multiple reports of the same fire (vicinity alarms)
- Steam/gas mistaken for smoke
- False calls (unable to classify)
- Malicious false calls
- Bomb scares
- System malfunctions
- Unintentional calls
- Six types of natural disasters
- Citizen complaints, including for code violations

**Finding #1:** The result reported is not substantiated by the documentation provided. The year-end Alarm Report lists 1,193 responses. The reason for the difference of 34 responses is undetermined.

**Recommendation #1:** Supporting documentation should match the reported products.

**Finding #2:** This activity includes several non-emergency responses. “Controlled burning,” “unintentional calls,” “false calls,” “steam/gas mistaken for smoke,” “multiple reports of the same fire,” “wrong location,” “system malfunction,” and “water, smoke and odor problems” are, by definition, not “emergency” products.

Capturing responses to incidents that may be reported as emergencies but that are not emergencies is inconsistent with the activity product, which is “an emergency responded to.” It may be important to capture the extent to which staff must respond to an apparent emergency as if an actual emergency exists – particularly in light of the fact that such responses consume resources and therefore require budgeted funds. However, accounting for non-emergency incidents in an emergency activity is not appropriate, as illustrated in Finding #3 below.

**Recommendation #2:** Staff should consider developing a new activity to capture reported emergencies that are not actual fires or catastrophic events. A lesser option would be to change the product from “An emergency responded to” to “A response to reports of emergencies,” or some similar product definition.

**Finding #3:** The response times to fire emergencies were calculated on the basis of 764 responses (only 66% of the volume of responses reported in this activity). Although the discrepancy in the number of “fire emergencies” responded to appears to have been due to differences in the types of calls included in each total, the terminology is the same and therefore the results are misleading. A reader might misconstrue that the response time reported for fire emergencies was based on 1,159 emergencies, rather than 764 emergencies.

**Recommendation #3:** Staff should consider matching the products reported in this activity to the responses used to calculate the response times.

## *Section IV: Conclusion*

The most important changes that could be made to enhance the accuracy and value of reported results for this program would be:

- ◆ To improve record-keeping and documentation of results by implementing processes that are likely to persist despite turnover;
- ◆ To improve consistency in the use of terminology and definitions
  - within measures
  - between the measures and the underlying data, and
  - across measures and activities;
- ◆ To review calculations for mathematical or methodological errors;
- ◆ To re-vamp or eliminate measures that are either outdated or lack a clear relationship to key program efforts and expenditures;
- ◆ To clarify and expand written procedures so that they provide staff with clear, detailed, and consistent guidance; and,
- ◆ To review source data to ensure it is free of inappropriate omissions or inclusions.
- ◆ Develop document retention standards that are referenced in the written procedures.

# DEPARTMENT RESPONSE TO AUDIT RECOMMENDATIONS

OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
Program 422	#1 A response time to emergency calls for assistance of 6.2 minutes from receipt of call by dispatch is achieved 90% of the time.	<p>1. Audit staff notes that the "total responses" used to calculate the result is equal to 20% of the total records originally extracted. No material exceptions were apparent.</p> <p>2. A minor calculation error was made. Six minutes, 20 seconds is not the same as 6.2 minutes. Two thirds of a minute is 12 seconds. Corresponding for this error, the reportable result would have been 71.33% of calls responded to within 6.2 minutes.</p> <p>3. The SOP conflicts with the measure. The SOP specifies that the result is to be reported in terms of the length of the individual response falling at the 90th percentile of all calls. Yet the measure requires reporting the result as a percentage rather than in terms of minutes. (Had the data been reported in terms of the length of response of the call at the 90th percentile, the result would have been 7.47, or 7.78 minutes.)</p> <p>4. The SOP provides inadequate direction for calculating response times. Per the procedure, staff is to review the calls and take out exceptions, such as those calls with no "on scene" times. Then, the response time is to be calculated as "the elapsed time from receipt of call by dispatch to arrival at scene." Since various units may be dispatched to -- and arrive at -- the same scene at different times, there may be several "response times" per incident. In practice, staff eliminates from the calculation all response times except that of the first unit arriving.</p>	<p>None.</p> <p>1. Staff should convert lengths of minutes into seconds prior to carrying out other calculations.</p> <p>2. Either the measure or the SOP should be revised so that they are consistent.</p> <p>3. The SOP should be revised to codify current practice, which is to use one response time to an incident based on the time of the first unit's arrival.</p>	<p>None</p> <p>Concur. The calculations for response time are now performed by a Senior Dispatcher with extensive experience for both Police and Fire Operations. Done.</p> <p>Concur. Done</p>	<p></p> <p>Implement</p> <p>Implement</p> <p>Implement</p>
Program 422	#2. The Budget/Cost Ratio (Planned cost divided by actual cost) is at 1.0.	<p>1. The result was correctly reported based on expenditures as documented in following year's accounting reports.</p>	<p>None.</p>	<p>None</p>	
Program 422	#3. A three-year average patient survivability rate of 20% in viable defibrillation cases is achieved.	<p>1. The raw data supplied to the audit team does not substantiate the result reported for this measure. The raw data shows that only 1 patient survived long enough to be discharged from the hospital in each of the fiscal years above. Staff was unable to resolve the discrepancy between the raw data and the figures used to calculate the result. If the calculation spreadsheet corrects for errors in the raw data, the reported result is correct. However, if the raw data is correct, the reportable result should have been 7% (3/43).</p>	<p>1. If this measure is retained, the methodology regarding data capture and use should be codified in detail in an SOP.</p>	<p>Concur. This measure was deleted in the restructure</p>	Do Not Implement Measure Deleted
Program 422	#4. A three-year average fire loss of 0.015% of total assessed value protected is maintained.	<p>2. This measure on average captures the program's effect on one person per year. In FY 2001/2002, staff reported responding to 5,257 medical emergencies. Therefore, since this is the medical response SOP's only program level measure, only the outcome of about 0.03% of this million-dollar Service Delivery Plan's efforts are reflected at the program level.</p> <p>1. Staff lacked adequate direction to ensure accuracy in the extraction of information from the database. There are numerous types of fires and each type has a code in the database. In order to query the total number of fires, the proper codes must be known. The SOP for this measure specified outdated codes.</p> <p>2. In the absence of adequate direction from the written procedure, staff extracted loss estimates for a broad range of fire types. Per the SOP, the measure intends to capture losses as a percentage of the cost to rebuild structures. However, the value of losses due to vehicle fires, and possibly some other types of fire losses that should not have been included, were included in the total. The average fire loss therefore appears to have been overstated in the reported result. The exact value of the overstatement is undetermined, but the loss was overstated by at least the average value of vehicle losses, which was \$68,120.</p>	<p>2. The program measure for the medical response SOP should be evaluated for possible replacement by a measure that captures the broader efforts to save life and limb.</p> <p>1. If this measure is retained, the SOP should be revised to clearly specify that the measure compares structural damage estimates to structural cost-of-replacement estimates, and which types of fires to include. It should also specify that both the estimated value of losses and the estimated value of structures should be averaged over the three years.</p> <p>See Recommendation #1</p>	<p>Concur. This measure was deleted in the restructure</p> <p>Concur. Measure was eliminated.</p> <p>Concur. Measure was eliminated.</p>	<p>Do Not Implement Measure Deleted</p> <p>Do Not Implement Measure Deleted</p> <p>Do Not Implement Measure Deleted</p>
		<p>3. There was a calculation error. Since the measure captures losses over three years as a percentage of value over three years, staff should have used an average valuation figure instead of using a figure from a single year.</p> <p>4. The result was calculated using a vastly inflated "total valuation" figure. The SOP indicates that the calculation should be performed using only the assessed value of the structure. That is, the calculation should exclude the value of the contents and land beneath the structure. The figure staff used was the total assessed value, including the cost of the land, contents and structure.</p> <p>5. The average estimated fire loss for the three years, less the vehicle fire losses, was \$708,572. The three-year average assessed value of structures was \$7,519,715.819. If the calculation had been carried out using these figures, the reported result for the measure would have been .009% instead of .005%.</p> <p>6. The meaning of the measure is obscure. For instance, the reported result, minus the vehicle value, equates to the loss of an estimated 5,600 square feet, or 2 1/2 average-sized homes. Using only the assessed value of structures in FY 2001/2002, more than 9,000 square feet of structure -- or about 4 average homes -- would have had to burn in order to reach the maximum loss permitted within the goal.</p>	<p>See Recommendation #1</p> <p>See Recommendation #1</p> <p>See Recommendation #1</p>	<p>Concur. Measure was eliminated.</p> <p>Concur. Measure was eliminated.</p> <p>Concur. Measure was eliminated.</p>	<p>Do Not Implement Measure Deleted</p> <p>Do Not Implement Measure Deleted</p> <p>Do Not Implement Measure Deleted</p>

# DEPARTMENT RESPONSE TO AUDIT RECOMMENDATIONS

OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
Program 422	#5.A three-year average rate of one hazardous substance release to the environment per 100 permitted facilities is maintained.	1. Staff used only permitted facilities in compliance, as opposed to total permitted facilities, to calculate the result. Because there are more permitted facilities than permitted facilities in compliance, the reported result would have been somewhat better if total permitted facilities had been used. The SOP specifies use of permitted facilities. How much better the reported result would have been if permitted facilities had been used cannot be determined by the records obtained by audit staff.	1. Staff should adhere to the SOP and use all permitted facilities, rather than "complying" permitted facilities, as the basis for calculations.	Concur. Done.	Implement
	#6. A customer satisfaction rating of 90% for Fire Services is achieved.	2. Fire staff did not provide manual tracking sheets for the FY 2000/2001 and FY 1999/2000 figures. Supporting sheets were provided for FY 2001/2002. As such, the reported result could not be substantiated by audit staff. 1. Given the absence of a current SOP, staff appropriately and accurately calculated the reportable result. 2. The survey design could be improved to enhance the reliability and validity of the results obtained. Given that relatively few survey respondents likely actually used Fire Services within the survey period, the survey design would have been stronger if a "screening" question had narrowed the pool of respondents to only those claiming to have had recent experience with these services.	2. Staff should retain all supporting documentation for several years, particularly in those cases when reported results rely on averaging several years of data. 1. Staff should consider including in future calculations other components of the survey, such as satisfaction with "Response Time to Medical Emergencies" and "Emergency Medical Services." 2. Although implementing such improvements could be prohibitively expensive or not feasible for other reasons, staff may wish to pursue development of a more robust survey design with respect to this measure.	Concur.	Implement
Program 422	#7. The number of fires per 1,000 population will be maintained at half the national average.	1. The reporting structure of the measure does not make sense, and the SOP does not clarify the issue. The measure itself specifies expressing Sunnyvale's fire rate as a percentage (with the goal of 50%) of the national fire rate. However, the measure requires reporting that percentage in terms of a number of fires. 2. The SOP did not specify what types of fires were to be included in the total. However, the National Fire Prevention Association (NFPA), which supplies the nationwide comparison data, defines "fire" as "any instance of uncontrolled burning." This implies that Sunnyvale's fire rate should include all types of fires, as opposed to simply structure fires. The program's internal "Alarm Report" for FY 2001/2002 shows 71 "structure fires", and 112 "other fires", for a total of 183. 3. The SOP specifies using the average fire rate per thousand for cities of Sunnyvale's population size. Per NFPA, this rate was 5.3. If Fire Services staff had reported the result based on 183 fires (per finding #2) and compared it to the national average for cities of Sunnyvale's size, the reported result would have been 25.8% (1.37/5.3). This is still far better than the target goal of 50%. 4. Per Finding #3, staff achieved a rate of 26% of the national average for comparable cities in FY 2001/2002. This means that Fire staff would have met the goal if almost twice as many fires had occurred.	1. Audit staff recommends clarifying the measure itself and developing an SOP that better explains what fires are supposed to be included in the calculation and how the calculation should be carried out. See Recommendation #1 2. Management should evaluate whether to retain or decrease the goal of 50%. See Recommendation #2	Concur. Measure was eliminated. see same	Do Not Implement Measure Deleted Do Not Implement Measure Deleted
SOP 42201	#1. An average response time to emergency medical calls (from dispatch to arrival at scene) of 4.47 minutes is achieved.	1. Audit staff notes that the "total responses" used to calculate the result is equal to 27% of the total records originally extracted. Audit staff analyzed the data at length, and conferred with knowledgeable senior dispatch staff and senior program analyst staff. No material exceptions were apparent. 2. Four minutes and 42 seconds (00:04:42) is not 4.42 minutes. This error materially affected the reported result by erroneously decreasing the reported response time by 6%. Because of this error, staff reported a result that appeared to exceed the goal, when in fact the goal was not met. 3. The list of response times used to calculate the average included 11 response times of "0." Note that although this subset of data appears to conflict with the overall program-wide data depicted in Outcome Measure #1, which contains no "0" response times, it does not. The two are in fact different data sets. This measure calculates the responses from the time of dispatch, rather than receipt of the call. 4. The SOP for this measure references emergency call codes that no longer exist. 5. The SOP provides inadequate direction regarding calculation of response times. The procedure indicates that, after staff removes the exceptions (such as responses with no "on scene" times), staff is to total the amount of time elapsed on all calls and divide by the number of calls received. However, the mechanics of the calculation are not specified in the SOP. In practice, staff calculates the response time based on the difference between the time the first unit is dispatched and the time the first unit arrives on scene, whether or not it is the same unit. In practice, other responses to the call are not included in the total.	1. Staff should convert times from seconds into fractions of minutes. 2. Responses with elapsed times of "0" should be excluded from response-time calculations. 3. A calculation methodology should be codified in the SOP. In addition, the call codes referenced in the SOP should be updated. See Recommendation #3	Concur. The calculations for response time are now performed by a Senior Dispatcher with extensive experience for both Police and Fire Operations. Done. Concur.	Implement Implement

OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
SDP 42201	#2. A response time to emergency medical calls requiring defibrillator hook-up of 5.8 minutes 40% of the time from the time of receipt of call to shock/no shock indication by defibrillator.	1. Based on the documentation provided, audit staff calculates the reportable result as 11%, rather than 15%. The reason for the difference is undetermined.  2. The value of this measure is limited by the fact that most cardiac arrest victims will be either dead or brain damaged 5.8 minutes into the episode. Furthermore, Emergency Response staff have said in interviews that it is not uncommon for bystanders to delay calling for help for many minutes. This means that even if staff reaches 40% of victims in 5.8 minutes from receipt of the call, the majority of the people they assist are already dead.	1. Due to the obscurity of the results for this measure and the question of whether it adds significantly to the understanding of overall staff performance, staff should consider an alternative measure.  See Recommendation #1	Concur. This measure was deleted in the restructure  Concur. This measure was deleted in the restructure	Do Not Implement Measure Deleted  Do Not Implement Measure Deleted
SDP 42201	#3. This measure is the same as Program Outcome Measure #3.	#3. This measure is the same as Program Outcome Measure #3.	This measure is the same as Program Outcome Measure #3.	Same.	See Same
SDP 42201	#4. By-Standers administer CPR in 15% of the total calls involving a non-breathing patient prior to the arrival of emergency personnel.	1. The supporting documentation provided to audit staff shows 10 bystanders administering CPR to 62 victims. This yields a reportable result of 16%, not 14.5%. It appears that staff accidentally counted only 9 of the 10 cases in which CPR was administered, and therefore reported the result as 14.5%, when in fact the result should have been reported as 16%. Actual performance on this measure was therefore better than reported.	1. Staff should carefully review all calculations to ensure they are accurate.	Concur. This measure was deleted in the restructure	Do Not Implement Measure Deleted
SDP 42201	#5. 100% of issues identified through the medical oversight program will be resolved within 30 days.	1. The SOP requires maintenance of a log to document this result. Fire Services staff did not attempt to document the efforts with respect to this measure. Reporting a result of 100% success without any documentation could potentially make staff vulnerable to credibility questions.	1. Staff should document the basis for reportable results. Among the options available to staff for documenting this outcome is the maintenance of a simple log throughout the fiscal year, as required by the SOP. Such a log could list the issues raised, the date the issue was raised, a brief description of the resolution and the date of resolution.	Concur.	Implement
SDP 42201	#6. 98% of fire-based personnel will have current certification in all mandated emergency medical response skills, including defibrillation and CPR.	1. Since all fire staff possess First Responder certification as required by Title 22, the reported result should have been 100%. The error was material because it changed the reported result from one that exceeded the goal to a result that appeared to be well below the level intended.  2. All of the training required by this measure is mandated by law. Therefore, all fire recruits receive this training in the academy. This measure captures a condition of employment, not the outcome of program efforts. It is possible that some certifications could lapse, particularly for staff on disability, but this could easily be dealt with as an administrative issue, rather than being tracked as an "outcome" of program efforts.	1. This measure should be eliminated. However, if a training measure is desired, staff may wish to specify that a certain percentage of fire personnel shall be EMT certified.  2. If the measure is retained, staff should consider changing the goal from 98% to 100%, with legitimate "exceptions" defined and allowed by the SOP. Doing so would ensure that Fire Services is not penalized for circumstances beyond staff's control, while also removing the inadvertent implication that it's "OK" to fall a bit short of state mandates.	Measure has been changed in restructure to 100%.  Measure has been changed in restructure to 100%.	Do Not Implement  Implement
SDP 42201	#7. A customer satisfaction rating for First Responder Emergency Medical Services of 90% is achieved.	3. The training referenced in this measure is required by law. Setting the goal at 98% suggests that the department responsible for law enforcement is willing to permit 2% of Fire personnel to violate the law. The "2% gap" was apparently intended to cover those instances in which certifications may lapse for legitimate reasons, such as disability.  1. Given the absence of an SOP for this measure, staff appropriately calculated the reportable result  2. The citywide survey queried respondents regarding their satisfaction with "response time to medical emergencies" and their satisfaction with "emergency medical services." There is no direction for staff regarding whether to use just one of these categories or whether to report their combined result. Had the results for these two questions been averaged, the reportable result would have been 87%.  3. It's likely that relatively few survey respondents actually used emergency medical services within the survey period. The survey design would have been stronger if a "screening" question had narrowed the pool of respondents to only those claiming to have had recent experience with these services. Second, "emergency medical services" is not defined and could be construed to mean different things to different respondents.	See Recommendation #2  1. An SOP that reflects the current survey methodology should be developed.  See Recommendation #1	Measure has been changed in restructure to 100%.  Concur.  Concur.	Implement  Implement  Implement
SDP 42202	#1. 95% of all calls for hazardous substance services are fully stabilized utilizing in-house personnel and resources.	1. There is no documentation to show that City staff stabilized the 7 incidents without outside assistance. Staff is not specifically tracking calls by whether they require outside assistance. Audit staff cannot substantiate the reported result.  2. Even if the City had required outside assistance to stabilize every single hazardous release, staff would have exceeded the goal in FY 2001/2002. This is because the calculation methodology as specified in the SOP is flawed.  3. See the findings related to the makeup of the 249 calls in Activity 422350: Emergency response to hazardous releases.	2. Although implementing such improvements could be prohibitively expensive, management may wish to pursue development of a more robust survey design with respect to this measure.  1. Staff should track via a log or similar mechanism instances where outside agencies provide assistance.  2. If this measure is retained, staff should revise the SOP to calculate the result based on responses to incidents requiring stabilization, rather than to all calls.	Do not concur. Satisfaction with Emergency Medical Services reflects the public's overall satisfaction with all services provided and is the result of coordination and balancing of prevention, response, contracts, public outreach, visibility and financial burden.  Concur. Measure was eliminated.	Do Not Implement  Do Not Implement Measure Deleted
				Concur. Measure was eliminated.	Do Not Implement Measure Deleted

# DEPARTMENT RESPONSE TO AUDIT RECOMMENDATIONS

OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
SDP 42202	#2. A compliance rate of 90% is maintained for all hazardous substance permitted facilities.	1. The data is tracked in compliance with the SOP.	None.	None	
SDP 42202	#3. The Hazardous Materials permit will be issued an average of three working days from the time of approval of the fire protection systems.	1. The SOP specifies that staff is to keep a log in order to document the reported result for this measure. Staff has no means in place to track the length of time between approval of fire permits and issuance of permits and therefore the result reported cannot be substantiated. 2. Since efforts to ensure rapid turnaround times may increase costs, there should be a clear benefit associated with speed. Given that businesses proceed to open without permits, it's not clear what benefit is gained by attempting to ensure an average 3-day turnaround for permits.	1. Staff should either eliminate the measure or develop and implement a mechanism for tracking the result.	Concur. Measure was eliminated.	Implement
SDP 42202	#4. 100% of City-owned contaminated sites are in compliance with Regional Water Quality Control Board (RWQCB) orders.	1. The result should have been reported as "N/A" in FY 2001/2002. By reporting the result as "100%", staff implied success in meeting a goal, when in fact there was no goal to meet.	1. No result should be reported for this measure in future years and ultimately the measure should be eliminated.	Concur. This measure was deleted in the restructure	Implement
SDP 42202	#5 This measure is the same as Program Outcome Measure #5.	This measure is the same as Program Measure #5.	See Same	see same	See Same
SDP 42202	#6 The number of hazardous substance emergency response incidents will be maintained at an average of 28 incidents per year over a three-year period.	1. Although the 22 incidents were recorded as actual hazardous situations, it appears that 15 of these calls were erroneously coded as actual hazardous situations. 2. Audit staff was able to count the number of incidents corresponding to codes 41 and 42 in the first eight period reports. Beginning with reporting period 9, the system codes had changed. Because of the different coding system, audit staff came to a different total. Audit staff counted 35 incidents in FY 2001/2002 whose codes or descriptions appeared to be consistent with this measure. Again, it appears likely that 28 of the 35 incidents were coded as actual toxic situations, when in fact they were calls about perceived incidents.	1. Staff should revise the SOP where necessary to capture new incident codes for this measure and should consider revising the measure from "maintaining" an average number of incidents per year, to "shall not exceed" a number of incidents per year.	Concur. Measure was eliminated.	Do Not Implement Measure Deleted
SDP 42202	#7 A customer satisfaction rating of 90% for the Provision of Hazardous Services is achieved.	3. Supporting documentation for number of incidents in FY 2000/2001 and FY 1999/2000 was not provided to the audit team. Therefore, audit staff cannot substantiate the result reported.	See Recommendation #1	see same	See Same
SDP 42202	#1. An average response time to fire calls of 4.5 minutes from dispatch to arrival at scene is achieved.	1. There is no survey data related to satisfaction with "Hazardous Services." in the absence of the data, staff reported the same result here that was obtained for Program Outcome Measure #6 - satisfaction with "Fire Protection." 1. Audit staff notes that the "total responses" used to calculate the result is equal to 18% of the total records originally extracted. Audit staff analyzed the data at length, and conferred with knowledgeable senior dispatch staff, senior program analyst staff and Fire staff regarding the process. No material exceptions were apparent. 2. The result should have been reported as 5.08 minutes, rather than 5.05 minutes. Although this discrepancy is minor, repeating this calculation error in the future could result in material discrepancies with the actual reportable result. (See SDP 42201 Measure #1.) 3. The SOP, which has no signature or date, provides minimal direction regarding which responses should be excluded from the calculation. It says only that "a review of the calls will be made and exceptions will be excluded."	2. Staff should retain all documentation of data used to report outcome results. 1. A question related to this measure should either be included in future surveys or the measure should be eliminated, in the meantime, the reported result should be "N/A." 2. If the measure is to be retained, the SOP should be revised to reflect the current methodology. None.	Concur. Measure was eliminated. Concur. Measure was eliminated at the SDP level. Concur. Measure was eliminated at the SDP level.	Do Not Implement Measure Deleted Do Not Implement Measure Deleted Do Not Implement Measure Deleted
SDP 42203	#2 An in-service rate of 98% for emergency apparatus is maintained.	1. Fire vehicle "up time" is entirely dependent on the efforts of the Vehicle Program. The Vehicle Program has an outcome measure for vehicle in-service time that includes the in-service times for Fire apparatus. 2. There is no documentation for the reported result of 100%. Based on the records from the Vehicle Program, which show an average in-service percentage for Fire apparatus of 97.7%, performance appears to have been overstated. 3. Audit staff was unable to locate a signed, dated SOP. The unsigned SOP provides unclear direction as to the calculation methodology. The SOP states: "The number of days an apparatus is out of service will be logged by the Staff Maintenance Officer. The total number of days when the fleet falls below full staffing will be subtracted from the total number of days in the time period selected. The resulting number will be divided by the total number of days in the period selected."	1. Staff should report the result in the form of minutes, rather than minutes and seconds. 2. The SOP should be improved to provide better direction to staff regarding which responses to exclude from the calculation. 1. Since the in-service time for these vehicles is included in another measure, and since Fire Services does not control or devote resources to this outcome measure, it should be deleted from the Fire Services program. 2. Fire Services personnel should document reported results.	Concur. Done. Concur. This measure has been changed in the new structure. Do not concur, however this measure was deleted in the restructure.	Implement Implement Implement
SDP 42203	#3. A three-year average rate of two fire incidents per 100 permitted facilities is maintained.	1. The SOP requires calculation of the result based on total permitted facilities. The documentation provided to the audit team indicates that the calculation was performed using the number of permitted facilities in compliance. Whether this discrepancy resulted in a material difference in the reported outcome is undetermined.	1. Either the SOP should be revised to specify calculation based on facilities in compliance, or the calculation methodology should conform to the SOP.	Concur. This measure was deleted in the restructure Concur. This measure was deleted in the restructure	Do Not Implement Measure Deleted Do Not Implement Measure Deleted Implement



# DEPARTMENT RESPONSE TO AUDIT RECOMMENDATIONS

OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
SDP 42203	#4. A compliance rate of 90% is maintained for all operation permitted facilities.	2. Audit staff did not receive documentation of the data for either of the two years prior to FY 2001/2002. Therefore, the result reported cannot be verified by audit staff.  1. Audit staff was unable to determine how the reported result was calculated. The "Fire and Environmental Services Bureau Activity" report provided by Fire Services shows a total of 780 operations permits at the end of the fiscal year, and 773 permitted facilities in compliance, for a rate of 99%. The reported result therefore appears to have understated program performance.	2. Staff should retain all documentation for calculations	Concur.	Implement
SDP 42203	#5. This measure is the same as Program Outcome Measure #4.	This measure is the same as Program Measure #4	See Same	see same	See Same
SDP 42203	#6. The time from when a new business file is received to issuance of initial operations permit is an average of eight working days.	1. Fire Services provided inadequate documentation of the reported result. The calculation worksheet shows 115/17 = 6.76, but no explanation or documentation for the figures provided to audit staff. Program management indicated in interviews that no log was kept, as required by the SOP. Audit staff cannot verify the reported result.	1. Fire Services should clearly document all calculations of reported results.	Concur. Measure was eliminated.	Do Not Implement Measure Deleted
SDP 42203	#7. Fires are contained to the structure of origin after arrival to scene in 90% of all structure fires over the three-year average.	1. Audit staff did not receive Fire Services documentation of the data for either of the two years prior to FY 2001/2002. Therefore, audit staff cannot verify the reported result.  2. The usefulness of this measure as an indicator of annual program outcomes is questionable. Audit staff reviewed reported results from FY 1999/2000 through FY 2003/2004 and found no reported fires caused by failure to contain a blaze to its original structure. This suggests that it would be extraordinarily rare for there to be a 3-year period in which more than 10% of structure fires spread to other facilities.	1. Staff should retain all documentation for calculations.  2. Staff should revise or eliminate the measure.	Concur.  Concur. Measure has been revised.	Implement  Implement
SDP 42203	#8. A customer satisfaction rating of 90% for Fire and Catastrophic Event Services.	1. There is no SOP for this measure. Given the absence of an SOP, staff appropriately and accurately calculated the reportable result.	1. Staff should develop an SOP.	Concur. New structure has accomplished this.	Implement
SDP 42203	#9. Audit staff did not audit this delinquent measure.	None.	None.	None	
SDP 42203	#10. The number of fires per 1,000 population is maintained at half the national average.	1. Staff reported Sunnyvale's calculated rate of fires (0.53), rather than the rate as a percentage of the national average rate of fires. Per the SOP, the result should have been reported as 8.5%, the percentage of the national average.	1. Staff should convert the city's rate into a percentage of the national rate.	Measure has been deleted.	Do Not Implement Measure Deleted
Activity 422010	Provide EMS.	2. All of the findings and recommendation applicable to Program Outcome Measure #7 also apply to this measure  1. The basis for the total number of calls reported is undetermined. Raw data and summary data supplied by Fire Services shows a wide range of call volumes. Since the SOP does not specify whether canceled or duplicated calls are to be included or excluded from the total reported here, audit staff has no way to determine whether the reported figure is reasonably consistent with call volumes from the Computer Aided Dispatch System or the California Fire Incident Reporting System. The program's FY 2001/2002 Alarm Report, which is a manual tracking system, lists 5,333 calls for this activity. Using monthly "Type of Situation" reports supplied by Fire Services, audit staff estimates approximately 4,828 responses fit this activity category. How Fire Services staff arrived at the 5,257 figure reported is undetermined.	See Same  1. Fire Services staff should develop a mechanism for tracking these calls, or use the call total used for calculation of SOP 42201 Measure #1 (Average response time to emergency medical calls).	Concur.  Concur.	Implement  Implement
Activity 422020	Provide Emergency Medical Oversight.	2. Although the name of this activity is "Provide Emergency Medical Service," and the product is "An Emergency Responded To," the SOP requires including a range of responses, some of which would not commonly be considered "medical emergencies." For instance, some instances captured here would never require any type of medical care.  3. In this activity, Fire Services staff reported responding to 5,257 emergency medical calls. In the outcome measure for response times to emergency medical calls, staff used 2,852 responses. This difference is due to differences in the types of calls included in each total. However, a reader could easily misconstrue that the average response time reported depicts the speed with which staff handled 5,257 calls, rather than 2,852 responses.	2. Staff should either broaden the definition of services provided in this activity, or capture non-emergency services in another activity.	Concur. The restructure has changed to "events."	Implement
Activity 422030	Provide Community Education - EMS.	1. Audit staff was unable to locate a log sheet of cases reviewed. Logging of cases is required by the SOP. Therefore, audit staff was unable to verify the reported result.  1. Audit staff cannot substantiate the reported result.	3. Staff may wish to report the total number of responses used to calculate response times to medical emergencies as the total number of emergencies responded to for this activity.	Concur.	Implement
Activity 422000	Provide for Compliance of Permitted Facilities - Environmental	2. The SOP requires tracking the products via class attendance rosters. No rosters were provided to audit staff for this activity.  None.	1. Fire staff should track these products using rosters and should retain all information used to calculate the result.  See Recommendation #1  None.	Concur.  Concur.  None	Implement  Implement  Implement

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OUTCOME LEVEL	MEASURE	SUMMARY OF FINDINGS	RECOMMENDATIONS	DEPARTMENT RESPONSE	DISPOSITION
Activity 422220	Provide Oversight of City Cleanup	1. Fire Services staff indicated that the City no longer owns any contaminated sites. The reported result should have been N/A	1. This activity should be eliminated.	Concur	Implement
Activity 422230	Determine Cause of Hazardous Substance Releases	None.	None.	None	
Activity 422240	Provide for Community Access to Hazardous Substance Files and Info	1. Fire Services staff documented 89 products. The 99 products reported cannot be verified by the audit staff. 2. There were no work hours charged to this activity. Management indicated that the work hour for this effort were charged to a different activity.	1. Staff should retain all period reports used to document year-end results. 2. Work hours should be charged to the activity where the work is performed.	Concur. Measure has been eliminated. Concur. Measure has been eliminated.	Do Not Implement Measure Deleted Measure Deleted
Activity 422300	Provide Supervision – Environmental	Products are work hours. Audit Staff did not attempt to validate hours charged.	None.	None	
Activity 422310	Provide Initial Training – Environmental	Products are work hours. Audit Staff did not attempt to validate hours charged.	None.	None	
Activity 422350	Provide Emergency Response to Hazardous Substance Releases	1. It appears that a few products may not have been counted. Audit staff was able to verify the number of incidents reported in the first eight reporting periods. Beginning with reporting period 9, the coding of incidents had changed. Because of the different coding system, audit staff came to a different total for periods 9, 10, 11 and 13. Audit staff estimated 255 incidents in FY 2001/2002 whose codes or descriptions appeared to be consistent with this activity's products. Fire Services staff reported a result of 246 – 9 fewer incidents than estimated by audit staff. 2. Capturing responses to incidents that are reported as emergencies but that are not emergencies is inconsistent with the activity product, which is "an emergency responded to." It may be important to capture the extent to which staff must respond as if an actual emergency exists – particularly in light of the fact that such responses consume resources and therefore require budgeted funds. However, accounting for non-emergency incidents in an emergency activity is not appropriate. Counting the products in this fashion results in different totals than are reflected in other "emergency response" measures.	1. The SOP should be revised whenever coding changes occur. 2. Staff should consider developing a new activity to capture reported emergencies that are not actual releases.	Do not concur. The definition is clear and allows staff to accurately compute results even if "coding" is changed in technical upgrades to the system.	Implement
Activity 422520	Provide for Compliance of Permitted Facilities – Fire Prevention	1. The figure reported here is correct based on the SOP for this activity. The SOP specifically requires the total of the complying permitted facilities reported in the outcome measure, plus the total of complying non-permitted "complex" facilities. It should be noted that in the unsigned SOP provided to audit staff, the title of the activity is "A permitted or complex facility in compliance." A reader is likely to assume that the compliance rate reported in the outcome measure (SOP 42203 #4) applies to 1,470 facilities, when in fact it applies to about half that total.	1. Either the name of the activity should be changed to reflect the true contents of the total, or the SOP should be revised to exclude complex facilities.	Concur. Completed in the restructure.	Implement
Activity 422530	Provide for Compliance of Non-Permitted Facilities – Fire Company	None.	None.	None	
Activity 422540	Determination of Fire Cause	1. The Department reported a result of 50. The documentation supplied to the audit team indicates there were 47 investigations conducted, with the cause of the fire determined in 46 cases. It appears that 47 investigations should have been reported, rather than 50 investigations.	1. Total products reported should be supported by the documentation supplied.	Concur.	Implement
Activity 422600	Provide Supervision – Fire Prevention	Products are work hours. Audit Staff did not attempt to validate hours charged.	None.	None	
Activity 422610	Provide Initial Training – Fire Prevention	Products are work hours. Audit Staff did not attempt to validate hours charged.	None.	None	
Activity 422650	Provide Emergency Response to Fires and Catastrophic Events	1. The result reported is not substantiated by the documentation provided. 2. This activity includes several non-emergency responses. Capturing responses to incidents that may be reported as emergencies but that are not emergencies is inconsistent with the activity product, which is "an emergency responded to." It may be important to capture the extent to which staff must respond to an apparent emergency as if an actual emergency exists – particularly in light of the fact that such responses consume resources and therefore require budgeted funds. However, accounting for non-emergency incidents in an emergency activity is not appropriate. 3. The response times to fire emergencies were calculated on the basis of 764 responses (only 65% of the volume of responses reported in this activity). Although the discrepancy in the number of "fire emergencies" responded to appears to have been due to differences in the types of calls included in each total, the terminology is the same and therefore the results are misleading. A reader might misconstrue that the response time reported for fire emergencies was based on 1,159 emergencies, rather than 764 emergencies.	1. Supporting documentation should match the reported products. 2. Staff should consider developing a new activity to capture reported emergencies that are not actual fires or catastrophic events. 3. Staff should consider matching the products reported in this activity to the responses used to calculate the response times.	Concur. Concur. The budget restructure has changed definition to "events" to include both emergency and non emergency responses. Concur. The budget restructure has changed definition to "events" to include both emergency and non emergency responses.	Implement Implement Implement